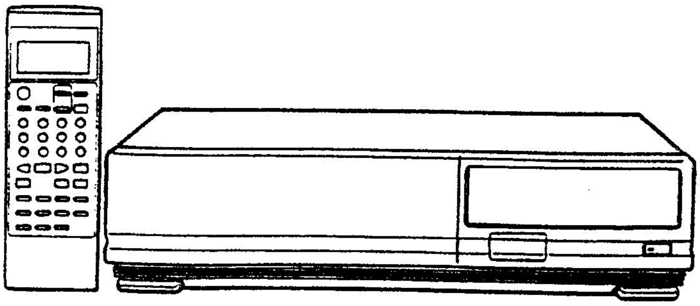
# Service Manual

ORION VHS PAL

Video Cassette Recorder

## VH-2491HS



Bestell-Nr.:

**4401**

CHASSIS CODE A

# SPECIFICATIONS

| | |
|---|---|
| **Power Source:** | AC220V 50Hz |
| **Power Consumption:** | Approx. 34 watts |
| **Operating Temperature:** | 5°C to 40°C |
| **Television System:** | CCIR: 625 lines, 50 fields<br>PAL or SECAM/OST colour signal |
| **Video Recording System:** | 2 rotary heads, helical scanning system<br>Luminance: FM azimuth recording<br>Colour Signal: Converted subcarrier phase shift recording |
| **Audio Track:** | 1 track |
| **Tape Format:** | Tape width 12.7mm high density tape |
| **Tape Speed:** | 23.39mm/s |
| **RF Output Channel:** | 36 (±4) |

| | |
|---|---|
| **Heads:** | Video: 2 rotary heads<br>FM Audio: 2 rotary heads<br>Audio/Control: 1 stationary head<br>Erase: 1 full track erase head |
| **Input Level:** | Video: VIDEO IN socket 1.0Vp-p, 75 ohm unbalanced<br>Audio: AUDIO IN socket -8 dB, 50k ohm unbalanced |
| **Output Level:** | Video: VIDEO OUT socket 1.0Vp-p, 75 ohm unbalanced<br>Audio: AUDIO OUT socket -6 dB, 1k ohm unbalanced |
| **Weight:** | 5.9kg |
| **Dimension:** | 385(W)x94(H)x358(D)mm |

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## HQ FEATURE

This VCR is equipped with HQ (High Quality) recording capability. A built-in detail enhancer is used to boost the recorded signal for cleaner, sharper images and maximum picture quality in playback.

## VPS FUNCTIONH

If the VCR is turned to a TV station transmitting the VPS signal, the VCR automatically takes any delay or extention of the program into account and can record the specified program.

# PREVENTIVE CHECKS AND SERVICE INTERVALS

The following standard table depends on environmental conditions and usage. Unless maintenance is properly carried out, the following service intervals may be quite shortened as harmful effects may be had on other parts. Also, long term storage or disuse may cause transformation and aging of rubber parts.

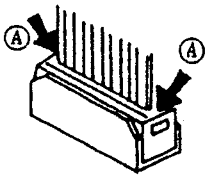
| Time / Parts Name | 500 hours | 1,000 hours | 1,500 hours | 2,000 hours | 3,000 hours | Notes |
|---|---|---|---|---|---|---|
| Full Erase Head | ☐ | ☐ | ☐ | ☐ | ☐ | Clean those parts in contact with the tape. |
| Audio Control Head | ☐ | ☐ | ☐ | ☐ | ☐ | |
| Loading Belt | | ☐ | | ○ | | Clean the rubber, and parts which the rubber touches. |
| Reel Belt | | ☐ | | ○ | | |
| Front Loading Belt | | ☐ | | ○ | | |
| Pinch Roller | ☐ | ☐ | ☐ | ☐ | ☐○ | |
| Capstan DD Unit | | | | | ○ | |
| Loading Motor | | | | | ○ | |
| Tension Band | | | | | ○ | |
| Capstan Shaft | ☐ | ☐ | ☐ | ☐ | ☐ | |
| Impedance Roller | ☐ | ☐ | ☐ | ☐ | ☐ | Replace when rolling becomes abnormal. |
| Tape Running Guide Post | ☐ | ☐ | ☐ | ☐ | ☐ | |
| Cylinder Unit | ☐ | ☐○ | ☐ | ☐○ | ☐○ | ※ |

○ : Replace
☐ : Clean

※ Clean the upper drum (especially the video heads) in the direction or drum rotation using a thick, textured cloth with a high quality methyl alcohol. Avoid wiping vertically as this may cause damage to the video heads.

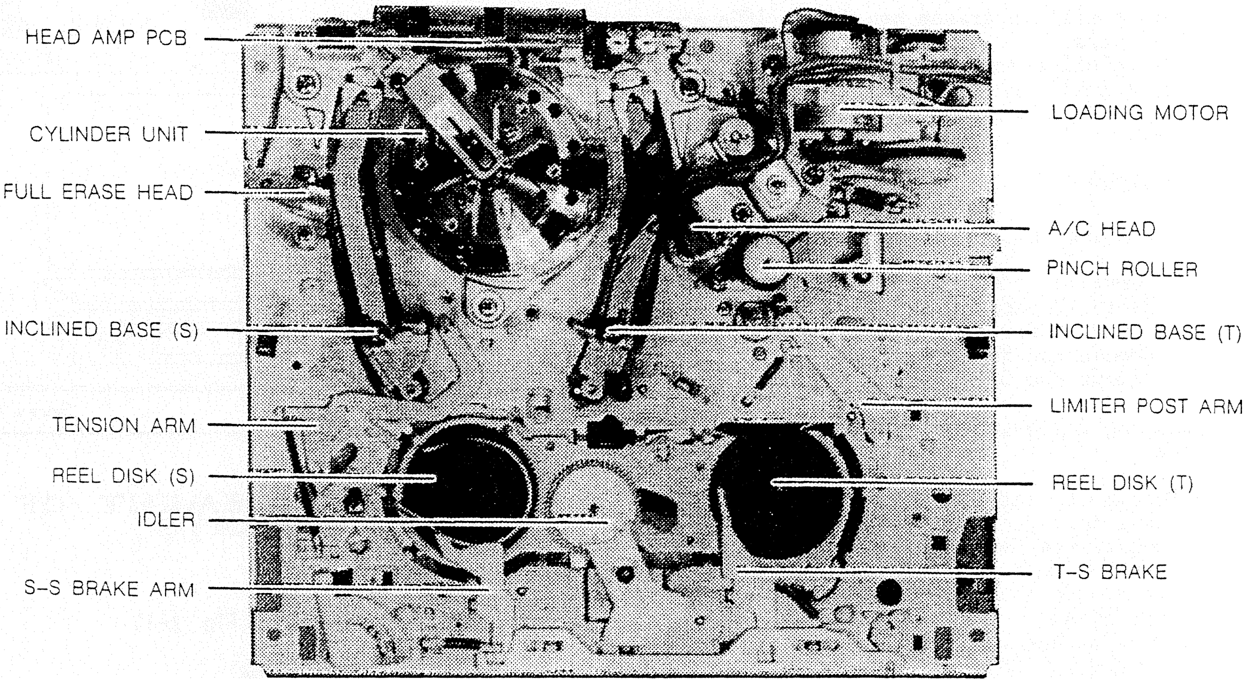
## HOW TO REMOVE AND INSTALL RIBBON WIRE IN CASE OF DISCONNECTION.

1. To remove the wire, simultaneously press both parts indicated by arrow Ⓐ .
2. To install the wire, do not press the parts indicated by arrow Ⓐ , but insert the wire into the connector.

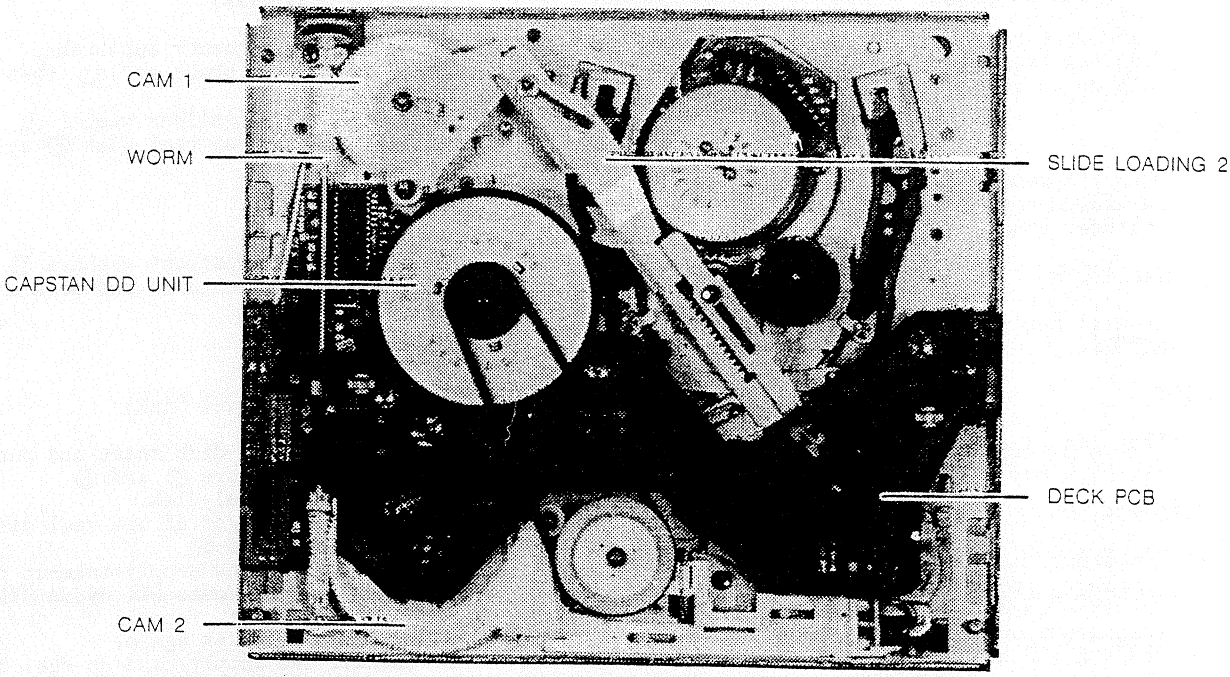


# DECK PARTS LOCATION

(TOP VIEW)


HEAD AMP PCB
CYLINDER UNIT
FULL ERASE HEAD
INCLINED BASE (S)
TENSION ARM
REEL DISK (S)
IDLER
S-S BRAKE ARM
LOADING MOTOR
A/C HEAD
PINCH ROLLER
INCLINED BASE (T)
LIMITER POST ARM
REEL DISK (T)
T-S BRAKE

(BOTTOM VIEW)


CAM 1
WORM
CAPSTAN DD UNIT
CAM 2
SLIDE LOADING 2
DECK PCB

# MECHANICAL ADJUSTMENTS

## 1. BEFORE MAKING MECHANICAL ADJUSTMENTS

CAUTION

Inferior silicon grease can damage IC's and transistors.
When replacing an IC's or transistors, use only specified silicon grease (YG6260M).
Remove all the old silicon before and apply new silicon.

PRECAUTION

Preform the following steps before making adjustmens.

1. Remove 2 screws and remove the TOP CABINET.
2. Remove 3 screws and remove the FOOT.
3. Remove 5 screws and remove the BOTTOM CABINET.
4. Remove the FRONT CABINET.
5. Remove the STAGE. **(Refer to Item 1-1)**

Read the following NOTED items before starting work.

* Remove the stage when replacing the deck parts.
* Place an object which weighs between 350g and 500g on the Cassette Tape to keep it steady when you want to make the tape run without the stage. (Do not place an object which weighs over 500g.)
* When you activate the deck without the stage, cover Q1101(BOT SENSOR) and Q1102(EOT SENSOR) with black tubes. Be sure to return the deck to it's original condition after repairs are completed.

### 1-1: HOW TO REMOVE AND INSTALL STAGE

REMOVAL **(Refer to Fig. 1)**

1. Remove the pulley of loading motor box and the front loading belt hooked on the stage worm.
2. Remove the screws ① and ② in the EJECT mode.
3. Push the stage in the direction of the arrow and lift up to remove the stage.

NOTE

When you remove and install the stage, be careful not to touch the guide pin or cylinder head.

INSTALLATION

Install new stage in the reverse steps of REMOVAL.

NOTE

When you re-install the stage, it should be in the EJECT mode.

CONFIRMATION

1. The front loading operation works well when turning on the power and when inserting a cassette tape into the stage.
2. Each function works well when pressing the PLAY, EJECT and REC buttons.

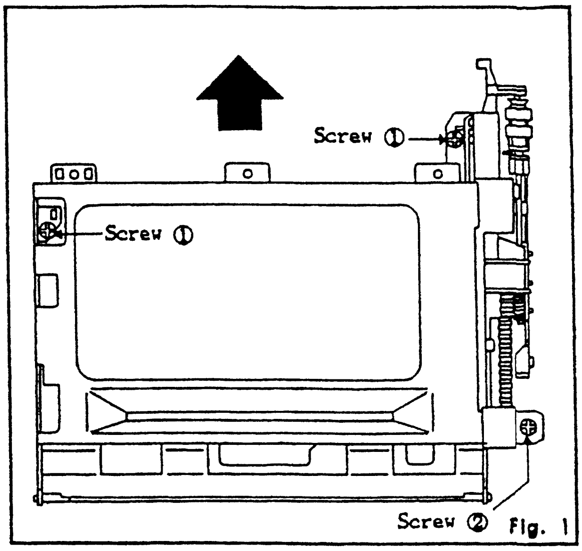


**Fig. 1**

## 2. REPLACEMENT OF MAIN PARTS

### 2-1: REEL DISK

REMOVAL **(Refer to Fig. 2-1)**

(Supply Reel Disk)

1. Remove the actuator sub brake.
2. Remove the SS brake spring, then remove the SS brake arm.
3. Remove the tension band from the main chassis.
4. Remove the polyslider washer ①.
5. Pull the supply reel disk ③ upward and replace it.

(Take-Up Reel Disk)

1. Remove the actuator sub brake.
2. Remove the TS brake spring, then remove the TS brake.
3. Remove the polyslider washer ④.
4. Pull the take-up reel disk ⑤ upward and replace it.

NOTE

The height adjustment washers ② and ⑥ are sometimes attached to the back of the reel disk.

INSTALLATION

(Supply/Take-Up Reel Disk)

1. Clean the reel disk shaft and put in height adjusting washers ② and ⑥.
2. Install new reel disk.
3. Adjust the height of the reel disk. **(Refer to Item 3-5)**
4. Pull out the new supply/take-up reel disk. After oiling (Cosmo Oil Hydro HV100) the reel disk shaft, install the new supply/take-up reel disk again.
5. Install the supply/take-up reel disk in the reverse steps of REMOVAL.

# MECHANICAL ADJUSTMENTS

NOTE

1. Be careful not to damage the tension band at the time of removal and installation.
2. Be careful not to scratch the reel disk shaft with the polyslider washer or the tool at the time of removal and installation.
3. After installation, adjust and confirm the tension post position. **(Refer to item 3-6)**

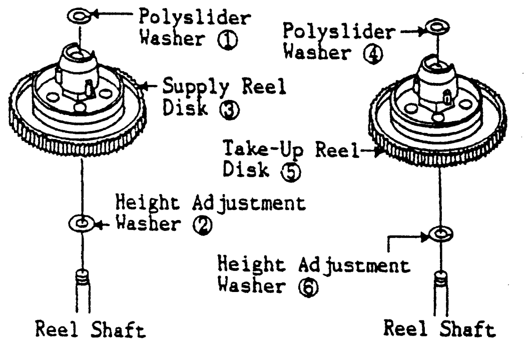

Polyslider Washer ①
Polyslider Washer ④
Supply Reel Disk ③
Take-Up Reel Disk ⑤
Height Adjustment Washer ②
Height Adjustment Washer ⑥
Reel Shaft
Reel Shaft

Fig. 2-1

## 2-2: A/C HEAD

REMOVAL **(Refer to Fig. 2-2)**

Remove the screws ①, ② and ③.

INSTALLATION

Install new A/C head in reverse steps of REMOVAL.

NOTE

Do not touch the heads by any means when replacing the A/C head.

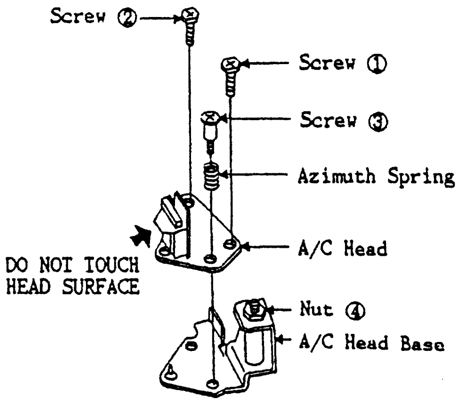

Screw ②
Screw ①
Screw ③
Azimuth Spring
A/C Head
DO NOT TOUCH HEAD SURFACE
Nut ④
A/C Head Base

Fig. 2-2

## 2-3: UPPER DRUM

REMOVAL **(Refer to Fig. 2-3)**

1. Remove the screw ② which holds the earth brush .
2. Desolder the lead wires ① from the upper drum assembly.
3. Be sure to use gloves, avoid the surface of cylinder unit. Hold down the upper drum preventing it from turning, then remove the screws ④, and remove the upper drum with the upper drum fixing jig (JG031).

INSTALLATION

Install new upper drum in the reverse steps of REMOVAL.

NOTE

1. Do not apply excessive pressure to screwdriver.
2. Before installing, confirm that there are no scratches or dust on the disk, upper drum surface and drum head surface.
3. When setting, take care not to let any dust or dirt go into the clearance between disk and upper drum.
4. Do not touch the surface of the cylinder head.
5. Check the adjustment of tape running. **(Refer to item 4-6)**
6. After replacement confirm the following adjustments.

a. ELECTRICAL ADJUSTMENTS : ITEM 2-1
b. ELECTRICAL ADJUSTMENTS : ITEM 2-2
c. ELECTRICAL ADJUSTMENTS : ITEM 2-3
d. MECHANICAL ADJUSTMENTS : ITEM 4-3

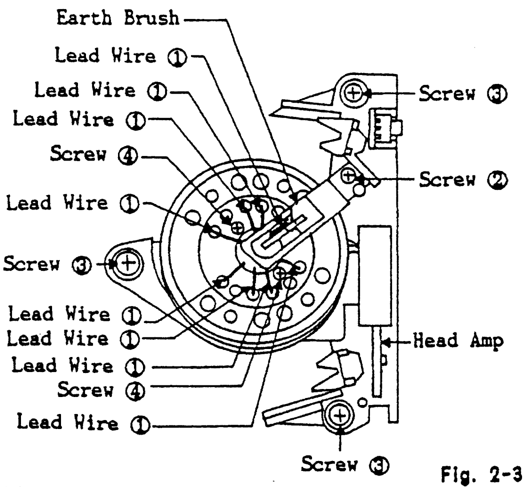

Earth Brush
Lead Wire ①
Lead Wire ①
Lead Wire ①
Screw ④
Lead Wire ①
Screw ③
Lead Wire ①
Lead Wire ①
Lead Wire ①
Screw ④
Lead Wire ①
Screw ③
Screw ②
Head Amp
Screw ③

Fig. 2-3

# MECHANICAL ADJUSTMENTS

## 2-4: CYLINDER UNIT

REMOVAL **(Refer to Fig. 2-3)**

1. Remove the transistor PCB. **(Refer to Item 2-9)**
2. Disconnect the connectors (CP4102, 8 pin and CP5601, 5 pin) from the head amp PCB.
3. Remove the screws ③, then remove the cylinder unit from the main chassis.
4. Disconnect the connector of the cylinder motor.

INSTALLATION

Install new cylinder unit in reverse steps of REMOVAL.

NOTE

1. Do not touch the surface of the cylinder head.
2. After replacement confirm the following adjustments.

   a. ELECTRICAL ADJUSTMENTS : ITEM 2-1
   b. ELECTRICAL ADJUSTMENTS : ITEM 2-2
   c. ELECTRICAL ADJUSTMENTS : ITEM 2-3
   d. MECHANICAL ADJUSTMENTS : ITEM 4-3

## 2-5: TENSION BAND

REMOVAL **(Refer to Fig. 2-4)**

1. Remove the actuator sub brake.
2. Remove the SS brake spring, then remove the SS brake arm.
3. Remove the screw ①.
4. Remove the tension band from the tension arm.

INSTALLATION

Install new tension band in reverse steps of REMOVAL.

NOTE

1. Install the tension band without twisting it.
2. Adjust the placement of the tension post. **(Refer to Item 3-6)**
3. Adjust and confirm the back tension during playback. **(Refer to Item 3-7)**

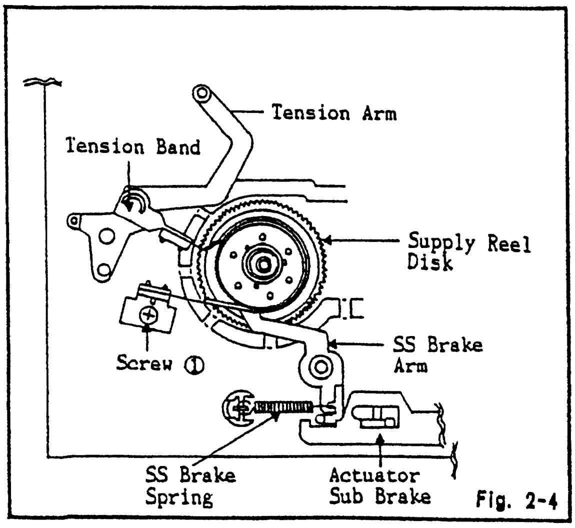


**Fig. 2-4**

## 2-6: LOADING MOTOR / LOADING MOTOR BELT

REMOVAL **(Refer to Fig. 2-5)**

1. Remove the 2 wires soldered to the loading motor.
2. Remove the lead wire in the hook of the loading motor box.
3. Remove the loading motor belt ②.
4. Remove the screw ①, then remove the loading motor box.
5. Remove the front loading belt ③.
6. Remove the screw ④, then lift the loading motor upward.

INSTALLATION

Install new loading belt in reverse steps of REMOVAL.

NOTE

1. Clean the pulley when replacing loading belt.
2. Replace it while in the EJECT mode.
3. Avoid getting grease on the loading belt.

CHECK AFTER INSTALLATION

1. Check if strange sound is heard in PLAY mode.
2. Check if P2 post and P3 post are fitted to the post stopper.
3. Check if P2 post and P3 post are completely returned in EJECT mode.

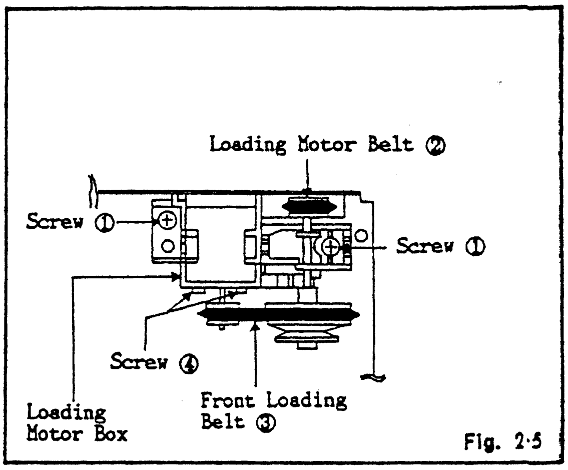


**Fig. 2-5**

## 2-7: PINCH ROLLER

REMOVAL **(Refer to Fig. 2-6)**

1. Remove the pinch roller arm spring.
2. Remove the polyslider washer ①.
3. Remove the pinch roller.

INSTALLATION

Install new pinch roller in reverse steps of REMOVAL.

NOTE

1. Be careful not to bend the pinch roller arm in removal and installation.
2. Do not touch the pinch roller. (Use gloves.)

CHECK AFTER INSTALLATION

Check if the tape is running normally in PLAY mode.

# MECHANICAL ADJUSTMENTS

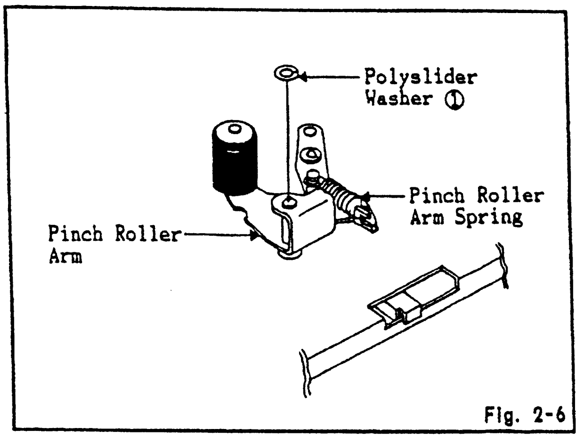

Polyslider Washer ①
Pinch Roller Arm Spring
Pinch Roller Arm

Fig. 2-6

## 2-8: CAPSTAN DD UNIT

REMOVAL

1. Disconnect the connector (CP2003 17 pin) from the main PCB.
2. Disconnect the connector (CP4102 8 pin) of the head amp PCB and the connector (CP5001 5 pin, CP2001 2 pin) of the main PCB.
3. Remove the screw ①, unlock the hooks (3 positions) which have been connected to the main PCB. **(Refer to Fig. 2-7-A)**
4. Disconnect the connector (9 pin) of the capstan DD unit.
5. Disconnect the connector (6 pin) of the cylinder unit back side.
6. Remove the reel belt.
7. Remove the solder "A" positions, remove the screws ① and then remove the deck bottom PCB.
8. Remove the loading motor belt ②.
9. Remove the screw ④, then remove the bracket worm 3.
10. Pull the hook ③ in the direction of arrow, then remove the worm. **(Refer to Fig. 2-7-B)**
11. Remove the screws ①, then remove the capstan DD unit. **(Refer to Fig. 2-7-C)**
    (Be sure to support with hand under the capstan DD unit.)

INSTALLATION

Install new capstan DD unit in reverse steps of REMOVAL.

NOTE

1. Do not bend the limiter post.
2. Use the specified screw held to the DD unit.
3. Avoid getting grease on the reel belt.
4. Be sure to install in the EJECT position. **(Refer to Fig. 2-7-E, F)**
5. Install in the position where the capstan DD unit PCB gets up to the "B" position. **(Refer to Fig. 2-7-B)**
6. When installing the worm, be sure to unlock the hook ③ in the direction of arrow, and the cam 1 and cam 2 must be meshed smoothly. **(Refer to Fig. 2-7-B)**
7. When installing the deck bottom PCB, be sure to install the rotary switch in the EJECT position.
   The EJECT position is the point where the "A" tooth is aligned to the "B". **(Refer to Fig. 2-7-D)**

CHECK AFTER INSTALLATION

1. Check if tape running is normal in PLAY mode.
2. Check if FF/REW mode works normally.

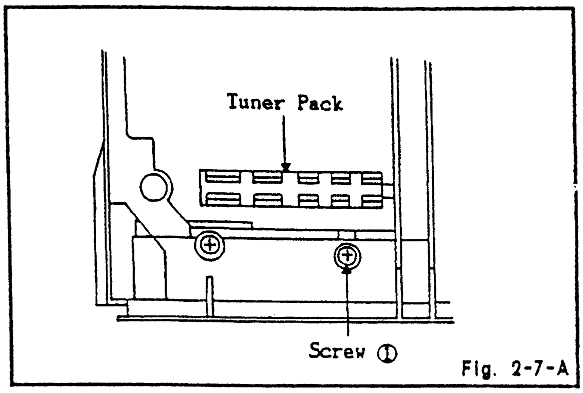

Tuner Pack
Screw ①

Fig. 2-7-A

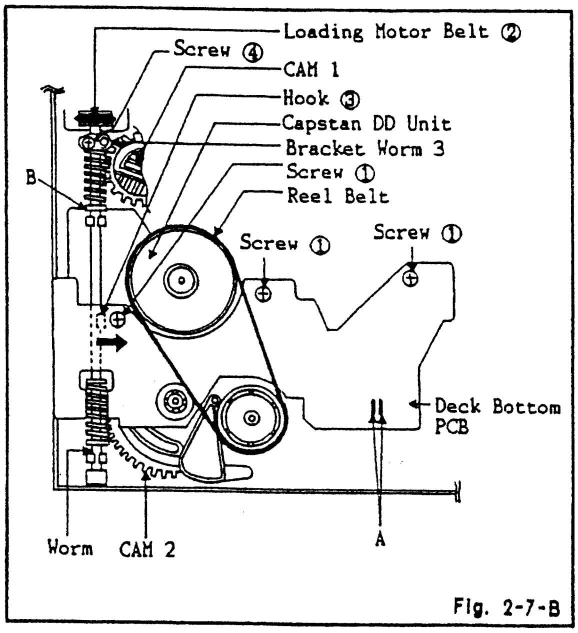

Loading Motor Belt ②
Screw ④
CAM 1
Hook ③
Capstan DD Unit
Bracket Worm 3
Screw ①
Reel Belt
B
Screw ①
Screw ①
Deck Bottom PCB
Worm
CAM 2
A

Fig. 2-7-B

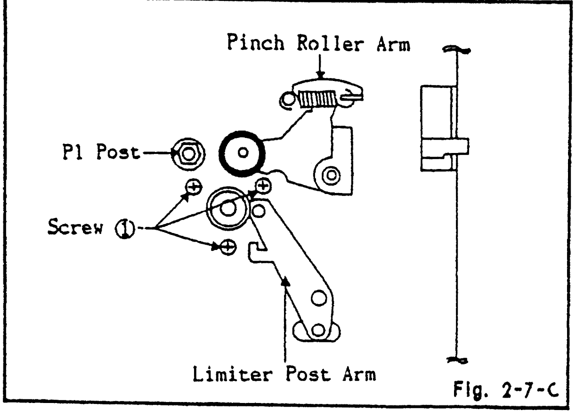

Pinch Roller Arm
P1 Post
Screw ①
Limiter Post Arm

Fig. 2-7-C

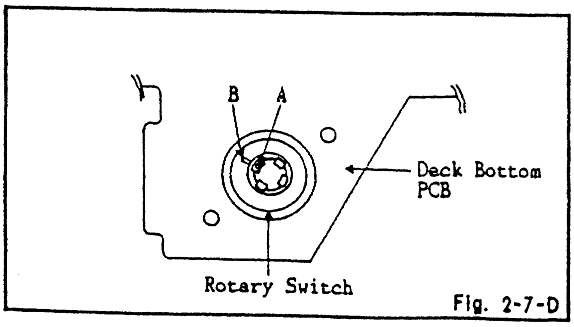

B
A
Deck Bottom PCB
Rotary Switch

Fig. 2-7-D

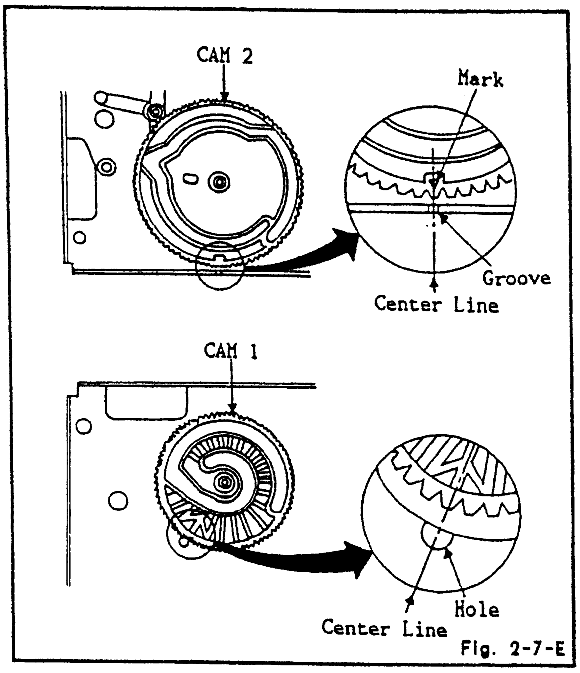

CAM 2
Mark
Groove
Center Line
CAM 1
Hole
Center Line

Fig. 2-7-E

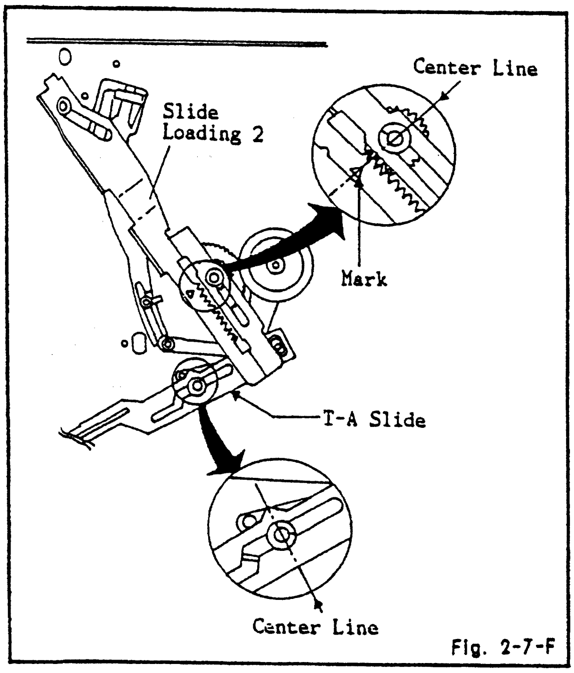

Center Line
Slide
Loading 2
Mark
T-A Slide
Center Line

Fig. 2-7-F

### 2-9: TRANSISTOR PCB

REMOVAL

1. Insert a small flat-blade screwdriver into the transistor spring as shown in Fig. 2-8.
2. Hold both edges of the transistor PCB ("A" part) with your fingers and pull out the transistor PCB while turning the driver.

INSTALLATION

Install new transistor PCB in reverse steps of REMOVAL.

NOTE

1. The unit should be unplugged from the AC outlet.
2. Do not scratch or mar the cylinder.
3. Be careful not to split the transistor PCB.
4. If the transistor spring is broken when holding or removing the transistor PCB, replace with a new one.

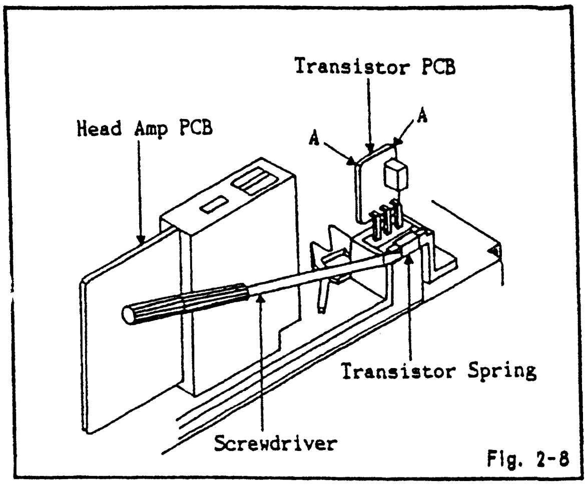

Transistor PCB
Head Amp PCB
A
A
Transistor Spring
Screwdriver

Fig. 2-8

## 3. CONFIRMATION AND ADJUSTMENT

### 3-1: CONFIRMATION OF FAST FORWARD TORQUE

CONFIRMATION

1. Set torque gauge (JG002G) on take-up reel disk, and place unit in FAST FORWARD mode. **(Refer to Fig. 3-1)**
2. Confirm that torque is more than 800g/cm.

NOTE

After setting the torque gauge on the reel disk, hold the gauge in place. Push the FAST FORWARD button and the reel disk will begin to turn.

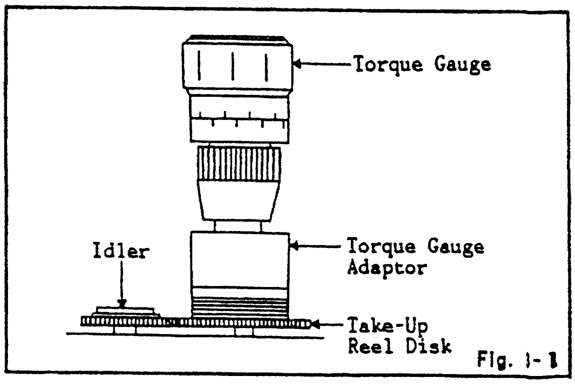

Torque Gauge
Idler
Torque Gauge Adaptor
Take-Up Reel Disk

Fig. 3-1

### 3-2: CONFIRMATION OF REWIND TORQUE

CONFIRMATION

1. Operate within 4 or 5 seconds after the reel disk begins to turn.
2. Set torque gauge (JG002G) on supply reel Disk, and place the unit in REWIND mode. **(Refer to Fig. 3-2)**
3. Confirm that torque is more than 800g/cm.

NOTE

After setting the torque gauge on the reel disk, hold the gauge in place. Push the REWIND button and the reel disk will begin to turn.

# MECHANICAL ADJUSTMENTS

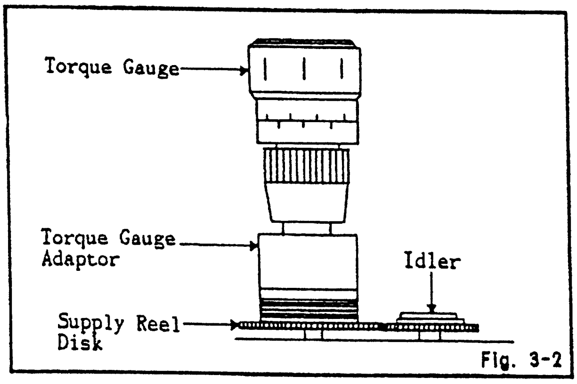

Torque Gauge
Torque Gauge Adaptor
Idler
Supply Reel Disk

Fig. 3-2

### 3-3: CONFIRMATION OF PLAYBACK TAKE-UP TORQUE

CONFIRMATION

1. Set the torque gauge (JG002F) on the rewind reel disk, then check PB mode.
2. Make sure that the torque covers the range, 60~150g/cm.

### 3-4: CONFIRMATION OF REEL BRAKE TORQUE

CONFIRMATION (Refer to Fig. 3-3-A)

(Take-Up Reel Brake)

1. Set to STOP mode.
2. Set the torque gauge (JG002G) to the take-up reel and turn it counter-clockwise.
3. Confirm that it is more than 200g/cm at that time.

CONFIRMATION (Refer to Fig. 3-3-B)

(Supply Reel Brake)

1. Set to STOP mode.
2. Set the torque gauge (JG002G) to the supply reel and turn it clockwise.
3. Confirm that it is more than 200g/cm at that time.

NOTE

Separate the idler from the reel and confirm the brake torque.

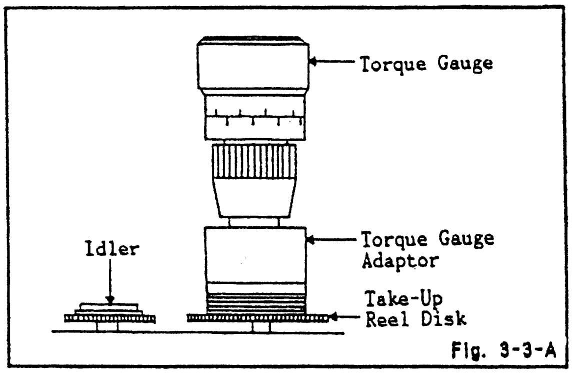

Torque Gauge
Idler
Torque Gauge Adaptor
Take-Up Reel Disk

Fig. 3-3-A

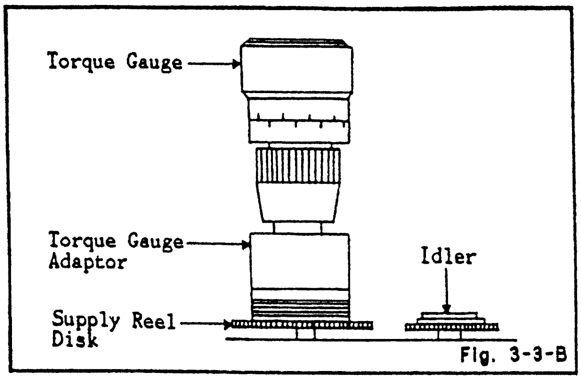

Torque Gauge
Torque Gauge Adaptor
Idler
Supply Reel Disk

Fig. 3-3-B

NOTE

Refer to the table below for possible cause of problems when confirmation cannot be made for indicated items.

| CONFIRMATION ITEM | CHECK POINT (REPLACEMENT) |
|---|---|
| 3-1<br>3-2<br>3-3 | Capstan belt may be stretched. Clutch may be worn out (if so, change reel disk.) Idler ass'y may be worn out. |
| 3-4 | Main brake belt may be worn out. |

### 3-5: CONFIRMATION AND ADJUSTMENT OF REEL DISK HEIGHT

ADJUSTMENT

1. Set the master plane (JG022) at mechanism framework, taking care not to scratch the drum, as shown in Fig. 3-4-A.
2. Confirm that the reel disk is lower than "A" of the reel disk height adjustment jig, (JG024) on the master plane and higher than "B" as shown in Fig. 3-4-B.
3. When it does not satisfy above items, adjust to less than 0.1mm~0.5mm with the height adjustment washer.

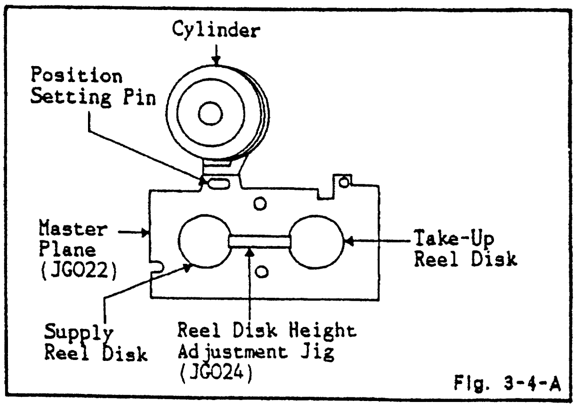

Cylinder
Position Setting Pin
Master Plane (JG022)
Take-Up Reel Disk
Supply Reel Disk
Reel Disk Height Adjustment Jig (JG024)

Fig. 3-4-A

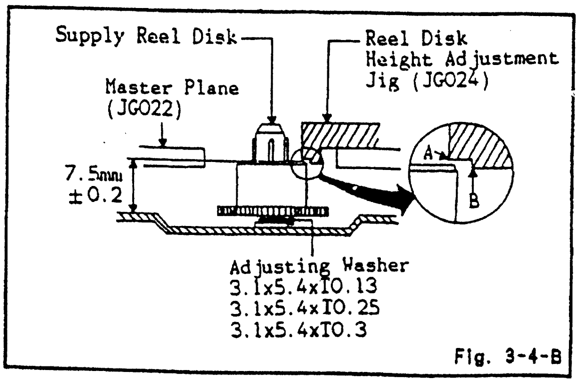

Supply Reel Disk
Reel Disk Height Adjustment Jig (JG024)
Master Plane (JG022)
7.5mm ±0.2
A
B
Adjusting Washer
3.1x5.4xT0.13
3.1x5.4xT0.25
3.1x5.4xT0.3

Fig. 3-4-B

# MECHANICAL ADJUSTMENTS

## 3-6: CONFIRMATION AND ADJUSTMENT OF TENSION POST POSITION

CONFIRMATION

1. Turn on the power and set to the PLAY mode by using the tension post adjustment jig (JG036).
2. As soon as the guide rollers, L, R begin to draw the tape from the cassette, the tension post shall move to the left, thus loading will start.
3. Move the tension band adjuster to the "A" or the "B" direction to set tension post adjusting jig red line to the round of the tension post. (**Refer to Fig. 3-5**)
4. Confirm that the video tape is not curling at the flange of P1 post or is not running on flanges.

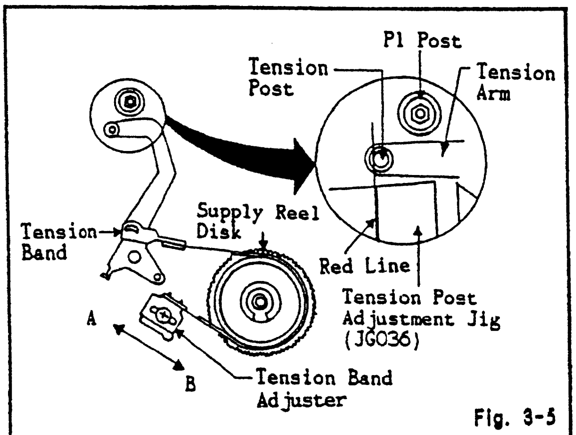

P1 Post
Tension Post
Tension Arm
Supply Reel Disk
Tension Band
Red Line
Tension Post Adjustment Jig (JG036)
A
B
Tension Band Adjuster

Fig. 3-5

## 3-7: CONFIRMATION AND ADJUSTMENT OF BACK TENSION ON PLAYBACK

CONFIRMATION

1. Load the E-60 cassette tape recorded in standard speed mode
2. Set the unit in the PLAY mode.
3. Install the tentelometer as shown in Fig. 3-6. Confirm the value is within 25~35g/cm at this time.
4. Confirm the video tape is running tight on P1 post.
5. Confirm there is no sag or damage on edges of the tape both in the beginning and ending of the video tape.
6. Adjust when it does not satisfy the above items.
7. Set the tension arm spring to "B" direction when the tentelometer indicates less than 25g/cm. (**Refer to Fig. 3-6**)
   Set the tension arm spring to "A" direction when the tentelometer indicates more than 35g/cm. (**Refer to Fig. 3-6**)

NOTE

The tentelometer should not touch F/E Head, cylinder or other components in the tape path.

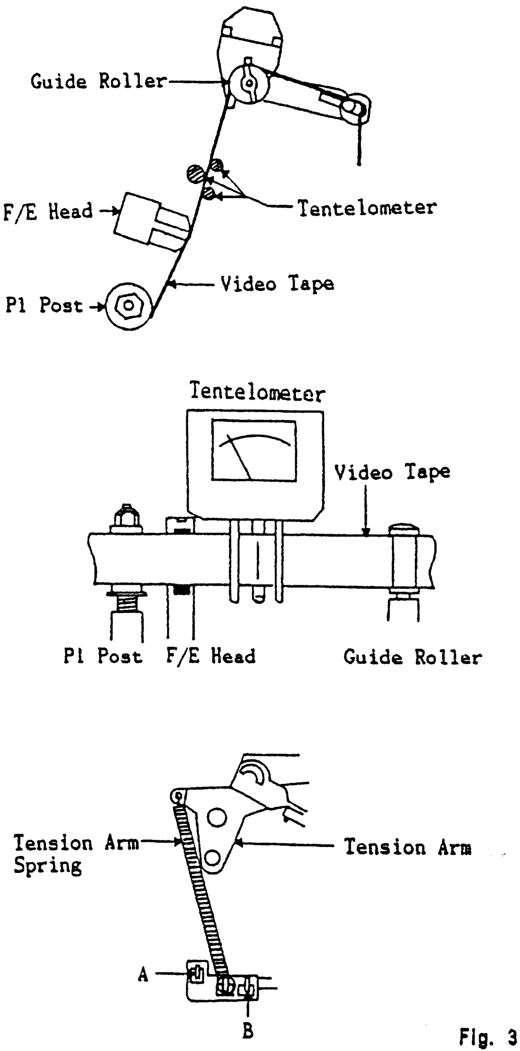

Guide Roller
F/E Head
Tentelometer
Video Tape
P1 Post
Tentelometer
Video Tape
P1 Post
F/E Head
Guide Roller
Tension Arm Spring
Tension Arm
A
B

Fig. 3-6

# 4. TAPE RUNNING CONFIRMATION AND ADJUSTMENT

Tape running is adjusted precisely at the factory. Normally, it is not necessary to make adjustments. It is necessary to confirm and make adjustments when the parts of the tape running mechanism are replaced because of extensive usage or failure.

## 4-1: P1 POST

ADJUSTMENT

1. Set to the EJECT mode. Install the P1/P4 post height adjustment jig (JG035) to the main chassis.
2. Adjust the P1 post with P1/P4 post height adjustment jig "A" part. (**Refer to Fig.4-1**)

## 4-2: P4 POST

ADJUSTMENT

1. Set to the EJECT mode. Install the P1/P4 post height adjustment jig (JG035) to the main chassis.
2. Adjust the P4 post with P1/P4 post height adjustment jig "B" part. (**Refer to Fig.4-1**)

# MECHANICAL ADJUSTMENTS

NOTE

1. Adjust the guide roller. **(Refer to Item 4-3)**
2. Do not move the nut.
3. Fix P4 post with screw lock.
4. Adjust the tape running. **(Refer to Item 4-6)**

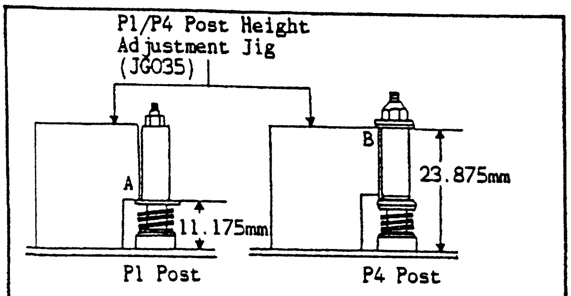


**Fig. 4-1**

## 4-3: GUIDE ROLLER

ADJUSTMENT

1. Switch on main power and then connect monitor output cord and video input cord to proper positions.
2. Insert the VHS adjustment tape (**JG001**) into the unit.
3. Connect CH-1 and CH-2 of oscilloscope to envelope output and to the test point of switching pulse, respectively.
4. Carry out this adjustment in PLAY mode.
5. Trigger with SW pulse and observe the envelope. **(Refer to Fig. 4-2-A)**
6. Adjust the guide roller height while observing the envelope, and make the envelope flat. Adjust the envelope so that the flatness will not be affected even when the tracking control knob is turned. (Use the adjustment screwdriver **JG005** ).
7. When the tracking control knob is turned (the point that the envelope waveform starts to reduce), adjust the envelope so that its A:B ratio is better than 10:7. **(Refer to Fig. 4-2-B)**
8. Adjust the PB switching position (**ELECTRICAL ADJUSTMENS : ITEM 2-1**) in the PLAY mode.

NOTE

After adjustment, confirm and adjust A/C head tilt. **(Refer to Item 4-4)**

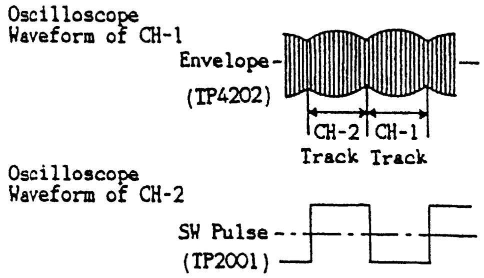


**Fig. 4-2-A**

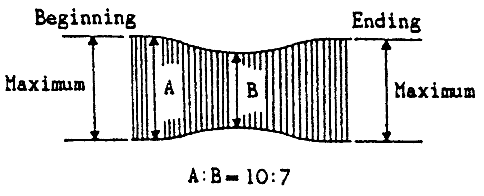


**Fig. 4-2-B**

## 4-4: CONFIRMATION AND ADJUSTMENT OF A/C HEAD TILT

ADJUSTMENT

When the tape is running abnormally, perform the following adjustments.

1. Check the tape running condition with the unit in the PLAY mode using the **E-60** tape.
2. Confirm that there is no crease on the tape between the guide post and guide roller(R) and the tape is running smoothly. (It is absolutely impossible to get satisfactory sound if the tape is distorted between the A/C head and guide post.)
3. If the tape still does not run smoothly, turn the screw ① and adjust the tilt of the A/C head. Do not move the guide post. **(Refer to Fig. 2-2)**

## 4-5: ADJUSTMENT OF A/C HEAD HEIGHT AND AZIMUTH

ADJUSTMENT

1. Playback a VHS adjustment tape (**JG001**) and observe the waveform at the audio output terminal.
2. Turn the screw ② slowly to change the height of the A/C head. Adjust the height so that the audio output becomes maximum. **(Refer to Fig. 2-2)**
3. Adjust the nut ④. **(Refer to Fig. 2-2)** until the height of the A/C head reaches the position against the tape as shown in **Fig. 4-3.**

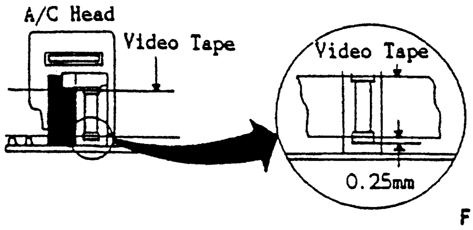


**Fig. 4-3**

## 4-6: TAPE RUNNING ADJUSTMENT

1. Adjust the height of reel disk. **(Refer to Item 3-5)**
2. Adjust the P1 post, P4 post. **(Refer to Item 4-1, 2)**
3. Confirm and adjust tension post position. **(Refer to Item 3-6)**
4. Adjust the guide roller. **(Refer to Item 4-3)**
5. Adjust the A/C head height and azimuth. **(Refer to Item 4-5)**
6. Adjust the A/C head tilt. **(Refer to Item 4-4)**
7. Set the tracking control to the center position. Turn X-nut adjustment screwdriver (**JG021**) until the envelope appears maximum.

# ELECTRICAL ADJUSTMENTS

## 1. BEFORE ELECTRICAL ADJUSTMENTS

These are adjustments when you replace electric parts or PCB ass'y.
When you repair the electric circuit, please read these adjustments.

1-1: Prepare the following measurement tools for the electrical adjustment.

1. Oscilloscope (2 channel type)
2. AC Voltmeter
3. Quartz Timer
4. Sweep-Marker Generator
5. AFT Adjustment Oscillator
6. VIF Unit
7. Audio Oscillator
8. Frequency Counter
9. DC Voltmeter
10. Spectrum Analyzer
11. Audio Generator
12. Separation Meter
13. Distortion Meter
14. Audio Analyzer

## 2. ADJUSTMENT PROCEDURE

### 2-1: PB. SWITCHING POSITION

CONDITIONS

MODE - PLAYBACK
Input Signal - Standard Test Tape

NOTE

Tracking control should be set at click point.

INSTRUCTIONS

1. Connect CH-1 on the oscilloscope to **TP2001** and CH-2 to **TP4201**.
2. Playback the tape.
3. Adjust **VR2001** so that the waveform of the oscilloscope measures 6.5±0.5(H) at both leading and trailing edges.
**(Refer to Fig. 2-1-A, B)**

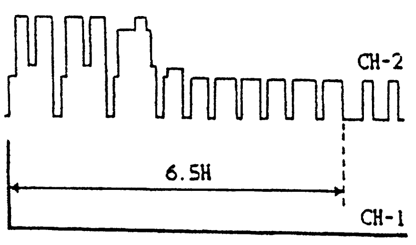


**Fig. 2-1-A**

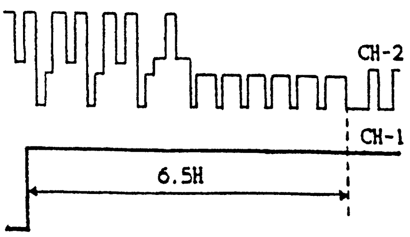


**Fig. 2-1-A**

### 2-2: TRACKING FIX

CONDITIONS

MODE - PLAYBACK
Input Signal - Standard Test Tape

NOTE

Tracking control should be set at click point.

INSTRUCTIONS

1. Connect CH-1 on the oscilloscope to **TP2001** and CH-2 to **TP2003**.
2. Playback the tape.
3. Adjust **VR2002** so that the "T" portion measures -1.0±0.3msec.
**(Refer to Fig. 2-2)**

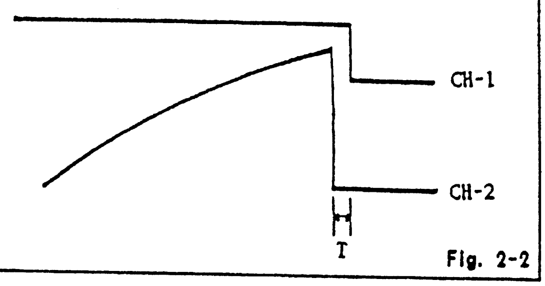


**Fig. 2-2**

### 2-3: PLAYBACK LUMINANCE LEVEL

CONDITIONS

MODE - PLAYBACK
Input Signal - Color Bar Test Tape

NOTE

Video out of the unit should be terminated with 75 ohm load.

INSTRUCTIONS

1. Connect the oscilloscope to **TP4201**.
2. Playback the tape.
3. Adjust **VR4003** so that the signal becomes 1.0±0.05Vp-p as shown in **Fig. 2-3**.

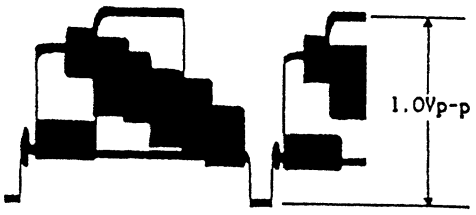


**Fig. 2-3**

# ELECTRICAL ADJUSTMENTS

## 2-4: NOISE CANCEL

CONDITIONS

MODE - PLAYBACK
Input Signal - Color Bar Test Tape

INSTRUCTIONS

1. Connect CH-1 of the oscilloscope to **TP4003** and CH-2 on the oscilloscope to **TP4004.**
2. Reverse the waveform for CH-2 with on inverter and put both the waveforms for CH-1 and CH-2 together by pressing the ADD SW on the oscilloscope.
3. Adjust the **VR4005** so that the waveform of CH-1 is straight as shown in **Fig. 2-4.**

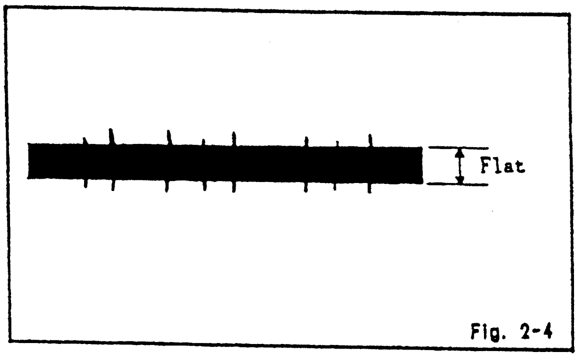


Fig. 2-4

## 2-5: E-E LEVEL

CONDITIONS

MODE - STOP
INPUT SELECT SW - LINE POSITION
Input Signal - PAL Color Bar

NOTE

Video out of the unit should be terminated with 75 ohm load.

INSTRUCTIONS

1. Input the color bar signal to the **VIDEO IN.**
2. Connect the oscilloscope to **TP4005.**
3. Adjust **VR4004** so that the waveform measures 0.53±0.01Vp-p. **(Refer to Fig. 2-5)**

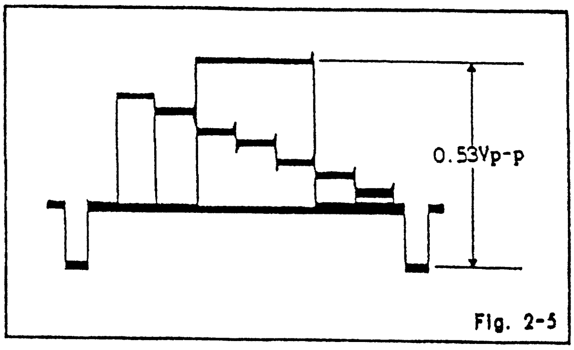


Fig. 2-5

## 2-6: CARRIER AND DEVIATION

CONDITIONS

MODE - STOP
INPUT SELECT SW - LINE POSITION
Input Signal - PAL Color Bar

INSTRUCTIONS

1. Input the color bar signal to the **VIDEO IN.**
2. Connect **TP4001** to the input terminal on the spectrum analyzer, then adjust 3.8MHz and 4.8MHz as shown in **Fig. 2-6** with **VR4001** and **VR4002.**

**VR4001** (CARRIER)
**VR4002** (DEVIATION)

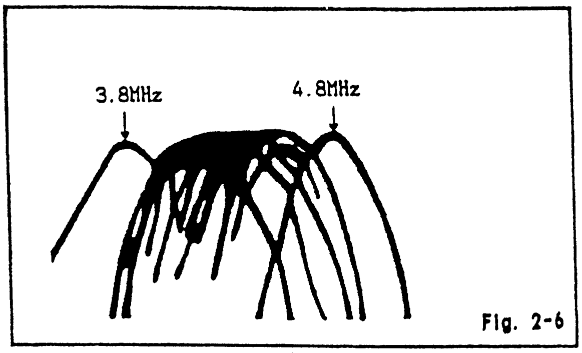


Fig. 2-6

## 2-7-A: SECAM IDENTIFICATION (1)

CONDITIONS

MODE - RECORD
Input signal - SECAM RF signal

INSTRUCTIONS

1. Connect CH-1 on the oscilloscope to **TP4201** and CH-2 to **TP3702.**
2. Adjust **L3702** so that peak of waveform "A" and leading edge of video signal of waveform "B" may become same as shown in **Fig. 2-7.**

## 2-7-B: SECAM IDENTIFICATION (2)

CONDITIONS

MODE - RECORD
Input signal - SECAM RF signal

INSTRUCTIONS

1. Connect the oscilloscope to **TP3701.**
2. Receive SECAM RF signal at 33dB.
3. At this time, adjust **TP3701** to High Level with **VR3701**
4. Next, check that the **TP3701** will indicate Low Level with adjusting the output level to 31dB.
5. Receiving the PAL signal, check that the **TP3701** will indicate Low Level regardless of output strength.

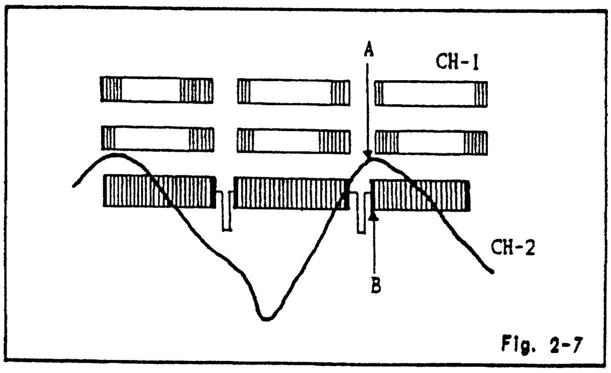


Fig. 2-7

# ELECTRICAL ADJUSTMENTS

## 2-8: RECORD CURRENT

CONDITIONS

MODE - RECORD
Input Signal - PAL Color Bar

INSTRUCTIONS

1. Input the color bar signal to the **VIDEO IN.**
2. Connect CH-1 on the oscilloscope to **TP4101** and connect the GND side to **TP4102.** Connect CH-2 on the oscilloscope to **TP4201.** Reduce REC.-Luminance signal factors by turning **VR4102** fully counter-clockwise.
3. Adjust **VR4101** so that the cyan level becomes 30±2mVp-p as shown in **Fig. 2-8-A.**
4. Adjust **VR4102** so that the horizontal sync level becomes 115±5mVp-p as shown in **Fig. 2-8-B.** (REC-Y must not be less than 110mVp-p.)

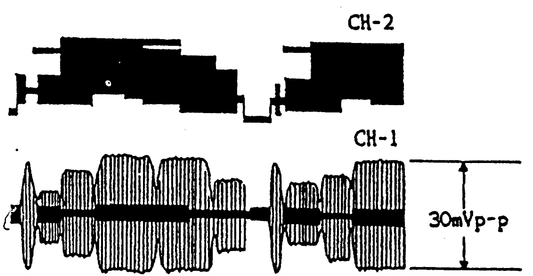


**Fig. 2-8-A**

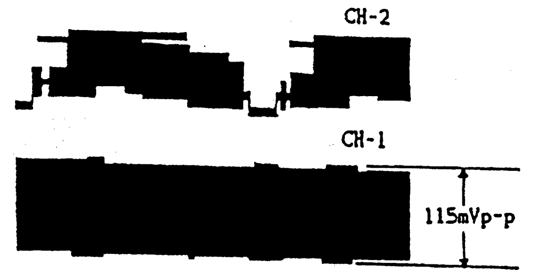


**Fig. 2-8-B**

## 2-9: CLOCK

CONDITIONS

MODE - STOP
POWER ON
CLOCK SET

INSTRUCTIONS

1. Connect the frequency counter to the "A" point.
2. Adjust **TC601** so that the value of frequency counter is 1048576±1Hz.

## 2-10: VCO

CONDITION

MODE - INPUT SELECT SW : TUNER POSITION

INSTRUCTIONS

1. Connect the output of the Sweep-Marker Generator to the saw filter side of C6013 (0.01μF).
2. Connect the oscilloscope to **28 pin on IC6001.** (Use the detector as a prob. **Refer to Fig. 2-9-A)**
3. Connect the AGC volume to **pin ⑥ on IC6001. (Refer to Fig. 2-9-B)**
4. Adjust **L6005** to obtain maximum amplitude of response curve at 38.9MHz. **(Refer to Fig. 2-9-C)**

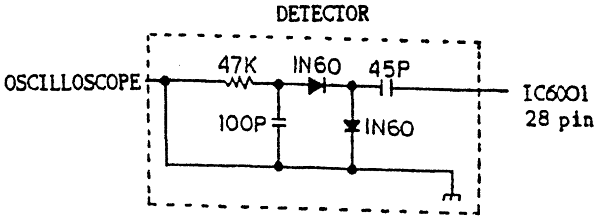


**Fig. 2-9-A**

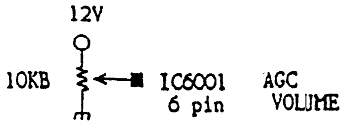


**Fig. 2-9-B**

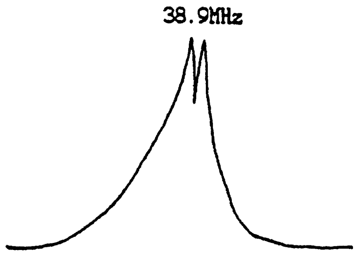


**Fig. 2-9-C**

## 2-11: TRAP

CONDITION

MODE - INPUT SELECT SW : TUNER MODE

INSTRUCTIONS

1. Connect the output of the Sweep-Marker Generator to the test point of the Tuner Pack.
2. Connect the oscilloscope to the collector of the **Q6001.** (Use the detector as a prob. **Refer to Fig. 2-9-A)**
3. Adjust **L6002** to obtain maximum amplitude or response curve at 40.4MHz. **(Refer to Fig. 2-10)**
4. Adjust **L6001** to obtain it at 32.4MHz. **(Refer to Fig. 2-10)**

# ELECTRICAL ADJUSTMENTS

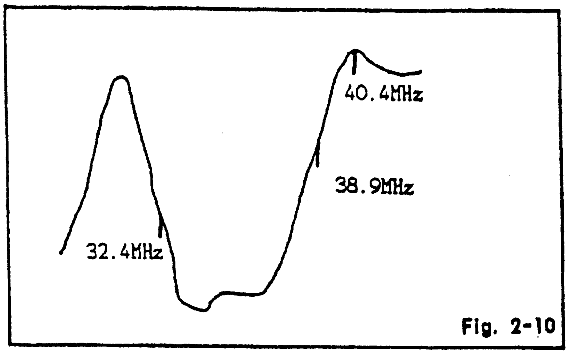


Fig. 2-10

## 2-12: AFT

CONDITIONS

MODE - STOP
INPUT SELECT SW : TUNER MODE

INSTRUCTIONS

1. Connect the AFT adjustment oscillator (38.9MHz) to the Tuner Pack TP through 2.2K ohm and connect the DC voltmeter to **TP6101.**
2. Adjust **L6006** so that voltage at AFT switch ON is as much as one at AFT switch OFF.

## 2-13: RF AGC

CONDITIONS

MODE - INPUT SELECT SW : TUNER MODE
AFT SW : ON MODE

INSTRUCTIONS

1. Receive the monochrome pattern signal. (Receive the E-11ch)
2. Connect the DC voltmeter to **TP6102.**
3. Set input field strength to 80dB μ.
4. Adjust **VR6002** so that the voltage is equal to 4.2±0.1V.

## 2-14: COLOR LEVEL

CONDITIONS

MODE - STOP
AFT SW : ON MODE

NOTE

Video out of the unit should be terminated with 75 ohm load.

INSTRUCTIONS

1. Obtain a color bar signal. (Receive the E-48ch)
2. Connect the oscilloscope to **TP4201.**
3. Adjust **VR6003** so that the magenta level is 47±5% when Y-level is 100%. **(Refer to Fig. 2-11)**

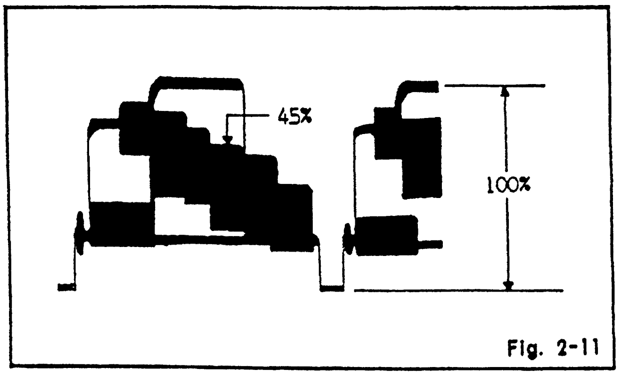


Fig. 2-11

## 2-15: SIF DISTORTION

CONDITIONS

MODE - INPUT SELECT SW : TUNER MODE
AGC SW : ON POSITION
AUDIO SELECT SW : STEREO POSITION
TUNER MODE SW : AUTO POSITION
AFT SW : ON POSITION

INSTRUCTIONS

1. Receive the Bilingual pattern signal. (Receive the E-30ch)
2. Connect the distortion meter to each AUDIO OUT L-CH and R-CH of the set.
3. Adjust **L6601(L-CH)** and **L6602(R-CH)** until the distortions reach minimum.

## 2-16: PILOT TONE VOLUME

CONDITIONS

MODE - INPUT SELECT SW : TUNER MODE
AFT SW : ON POSITION
AUDIO SELECT SW : STEREO POSITION
TUNER MODE SW : AUTO POSITION

INSTRUCTIONS

1. Connect the oscilloscope to **TP6602.**
2. Receive the stereo pattern signal. (Receive the E-50ch)
3. Adjust **VR6604** until the output waveform (117.5Hz) of **TP6602** reaches maximum amplitude. **(Refer to Fig. 2-12-A)**
4. Turn, receive the bilingual pattern signal. (Receive the E-30ch)
5. Adjust **VR6603** until the waveform(274.1Hz) of **TP6602** reaches maximum amplitude. **(Refer to Fig. 2-12-B)**

# ELECTRICAL ADJUSTMENTS

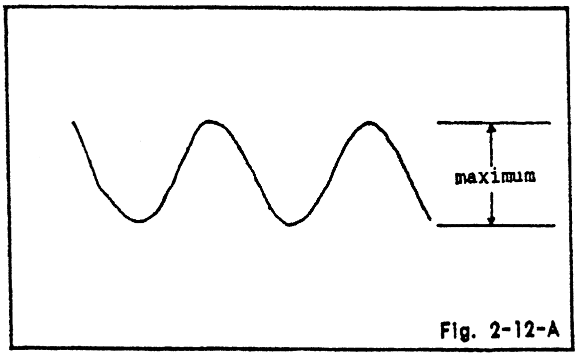


Fig. 2-12-A

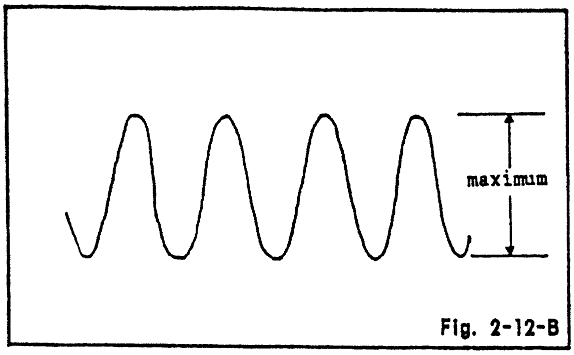


Fig. 2-12-B

## 2-17: PLL CENTER FREQUENCY VOLUME

CONDITIONS

MODE - INPUT SELECT SW : TUNER MODE
AFT SW : ON POSITION

INSTRUCTIONS

1. Receive the Monochrome pattern signal.
   (Receive the E-11ch)
   (Sound of the tuner is MONO signal)
2. Connect the electric capacitor(1 μF 50V) to **TP6602**.
   Input the sine wave [ 196Hz(100mVp-p) ] from the audio generator.
3. Connect the DC voltmeter to **TP6603**.
4. Adjust **VR6602** until the level of the DC voltmeter reaches 6.7±0.1V.

## 2-18: SEPARATION

CONDITIONS

MODE - INPUT SELECT SW : TUNER MODE
AGC SW : ON POSITION
AUDIO SELECT SW : STEREO POSITION
TUNER MODE SW : AUTO POSITION

NOTE : Adjust after approximately 20 minutes aging.

INSTRUCTIONS

1. Receive the Stereo pattern signal.
   (Receive the E-50ch)
   L-CH : No sound.
   R-CH : Sound OK.
2. Connect the separation meter to the AUDIO OUT L-CH, R-CH of the set.
3. Adjust **VR6601** until the separation of L-CH and R-CH become maximum.

## 2-19: CARRIER FREQUENCY

CONDITIONS

MODE - STOP
INPUT SELECT SW : LINE OR SCART POSITION
Input signal - Color bar
Audio no signal

INSTRUCTIONS

1. Connect the frequency counter to **TP5504**.
2. Adjust **VR5504(R-CH)** until the level of the frequency counter reaches 1.8MHz±5KHz.
3. Then, connect the frequency counter to **TP5503**.
4. Adjust **VR5502(L-CH)** until the level of the frequency counter reaches 1.4MHz±5KHz.

## 2-20: HI-FI DEVIATION

CONDITIONS

MODE - REC
AGC SW : OFF POSITION
AUDIO SELECT SW : STEREO POSITION

Input signal - Color bar
300mVrms,400Hz sine wave
INPUT SELECT SW : LINE OR SCART POSITION

NOTE : Adjust the REC volume until the level of audio out -6dBm.

INSTRUCTIONS

1. Connect the audio analyzer to **TP5601**.
2. Adjust the **VR5501(L-CH)**,**VR5503(R-CH)** for the audio analyzer indicates 50±5KHz.

## 2-21: FF SWITCHING POINT

CONDITIONS

MODE - PLAY
AUDIO SELECT SW : STEREO POSITION

INSTRUCTIONS

1. Connect the CH-1 of the oscilloscope to **TP5505**, the CH-2 to **TP5502**.
2. Playback the non-overlap(HI-FI 10KHz) tape.
   Adjust **VR5505** until the playback envelope of CH-2 has no break possibly.
   **(Refer to Fig. 2-13)**

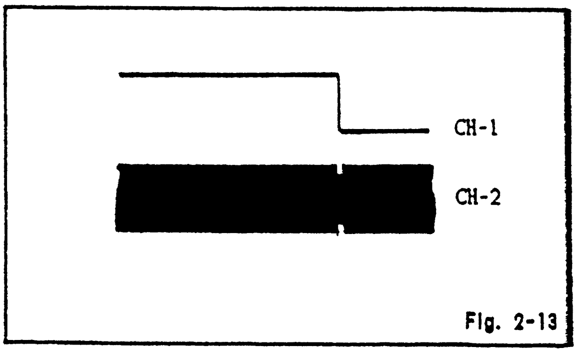


Fig. 2-13

# ELECTRICAL ADJUSTMENTS

### 2-22: LEVELMETER

CONDITIONS

MODE - INPUT SELECT SW : LINE OR SCART POSITION
AGC SW : OFF POSITION
AUDIO SELECT : STEREO POSITION
Input signal - Audio inpit 400Hz, 300mVrms

NOTE : Adjust the REC volume until the level of audio out -6dBm.

INSTRUCTION

Adjust the VR604(L-CH), VR605(R-CH) for the indicate of levelmeter to 0 dB position (that is one red LED light).

### 2-23: AUDIO BIAS CURRENT

CONDITIONS

MODE - RECORD
Input Signal - No Signal

INSTRUCTIONS

Connect the AC voltmeter to the arrow point, then adjust the voltage to 3.3±0.1mVrms with VR5002.(Refer to Fig. 2-14)

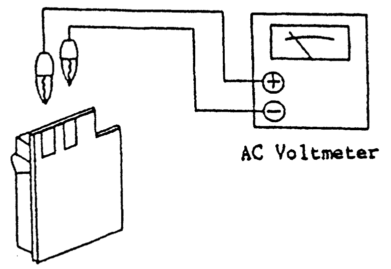


Fig. 2-14

### 2-24: AUDIO PLAYBACK LEVEL

CONDITIONS

MODE - Self(RECORD and PLAYBACK)
AUDIO SELECT SW - NORMAL POSITION
INPUT SELECT SW : SCART POSITION
Input signal - 1KHz 300mVrms, Audio signal
Video signal : PAL color bar

NOTE : Audio out of the unit should be terminated with 75 ohm load.

INSTRUCTIONS

1. Input the color bar signal to the AUDIO OUT.
2. Connect the AC voltmeter to AUDIO OUT, which is terminated with 47K ohm resistor.
3. Record and then playback the audio signal as specified.
4. Adjust VR5001 so that the playback output may become 390±10mVrms.

# HOW TO RESET MICROCOMPUTER

When either or both of the following conditions occur, follow the procedure below:

CONDITIONS

- ＊ The digitron display does not light up.
- ＊ The unit does not stop, even when the "STOP" button is pressed.

PROCEDURE

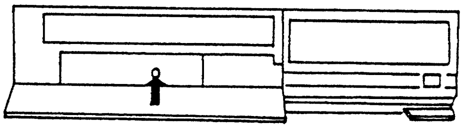
1. Open the compartment door.

   The reset switch is accessed through as unmarked hole, which is pointed by arrow is the illustration.

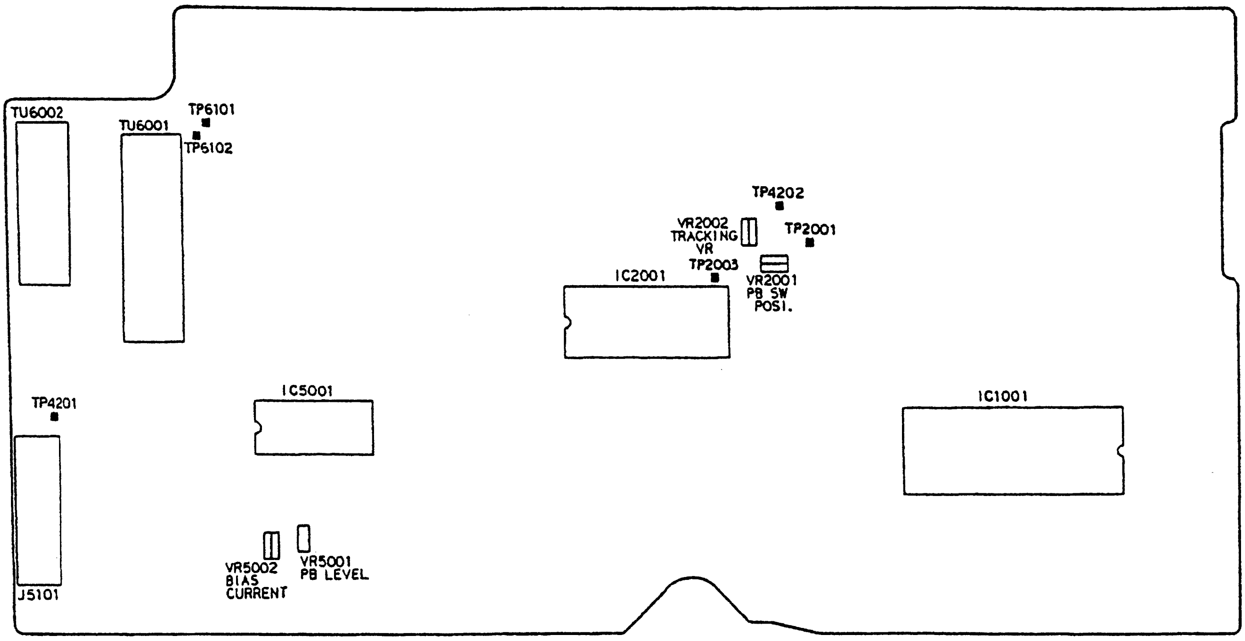
2. The unit is reset when a long, narrow probe (eg, the end of a paper clip) is inserted into the hole.

＊ After resetting the microcomputer, set the clock to the present time according to the owner's manual.

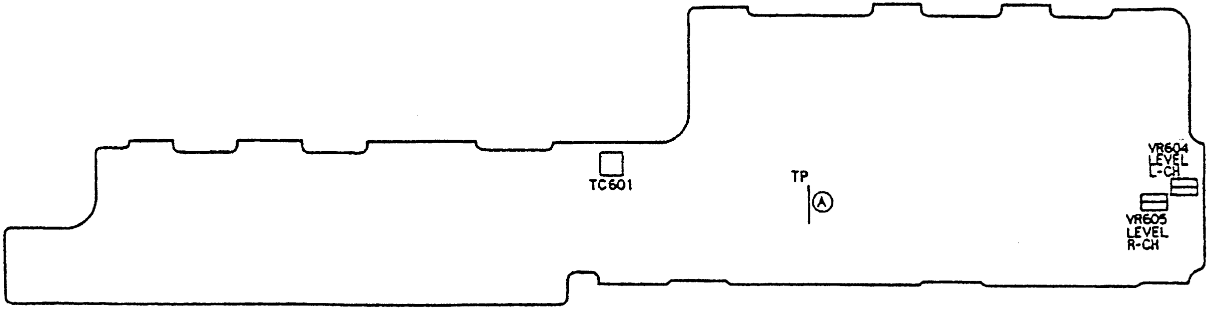
＊ A back-up circuit protects the unit from entering reset mode, even if the AC cord is unplugged from its AC outlet.



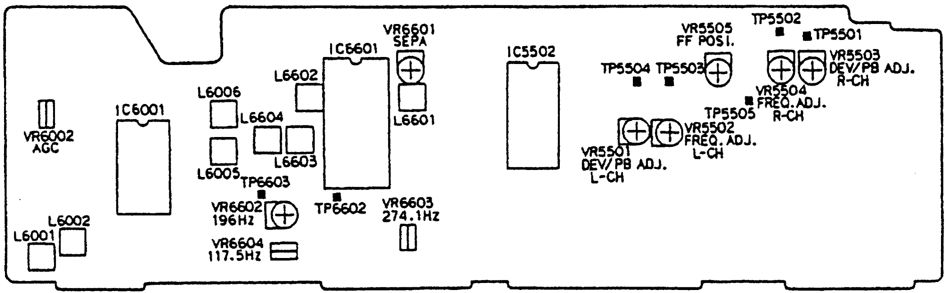
# MAJOR COMPONENTS LOCATION GUIDE


TU6002
TU6001
TP6101
TP6102
TP4202
VR2002
TRACKING
VR
TP2001
TP2003
IC2001
VR2001
PB SW
POSI.
IC5001
IC1001
TP4201
VR5002
BIAS
CURRENT
VR5001
PB LEVEL
J5101

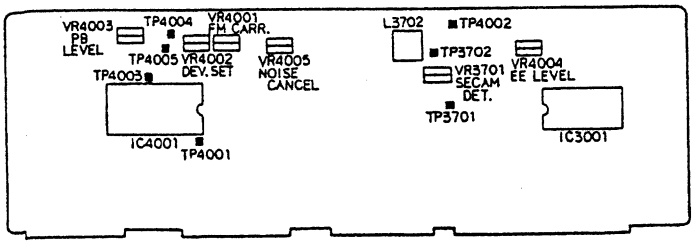
MAIN P.C.BOARD


TC601
TP
Ⓐ
VR604
LEVEL
L-CH
VR605
LEVEL
R-CH

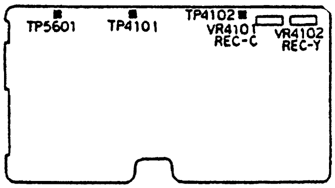
OPERATION P.C.BOARD


VR6601
SEPA
IC6601
IC5502
VR5505
FF POSI.
TP5502
TP5501
VR5503
DEV/PB ADJ.
R-CH
TP5504
TP5503
VR5504
FREQ. ADJ.
R-CH
TP5505
VR5502
FREQ. ADJ.
L-CH
VR5501
DEV/PB ADJ.
L-CH
L6602
L6006
L6604
L6601
L6603
L6005
TP6603
IC6001
VR6002
AGC
VR6602
196Hz
TP6602
VR6603
274.1Hz
VR6604
117.5Hz
L6002
L6001

HI-FI P.C.BOARD

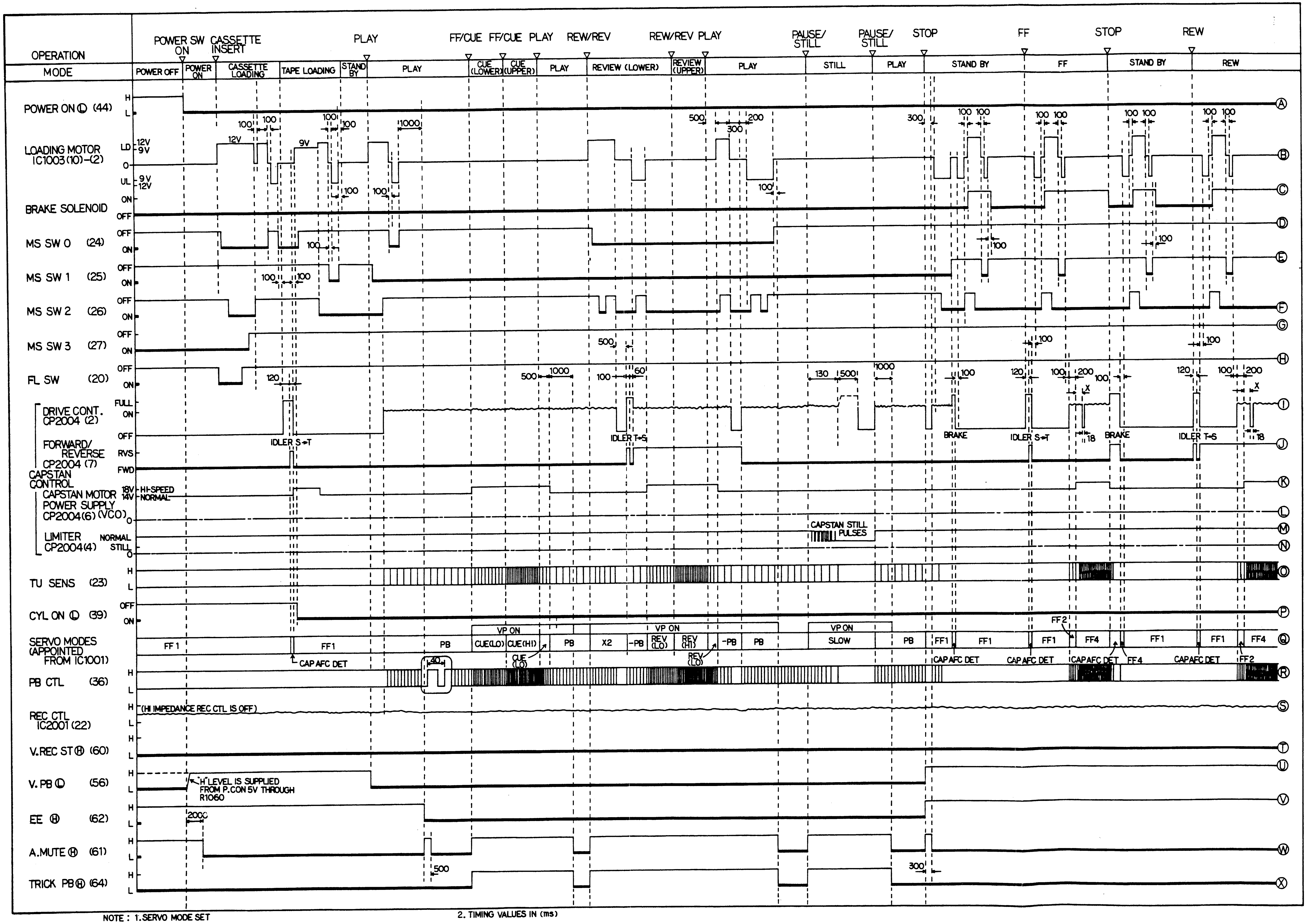

VR4003
PB
LEVEL
TP4004
VR4001
FM CARR.
TP4005
VR4002
DEV. SET
VR4005
NOISE
CANCEL
TP4003
IC4001
TP4001
L3702
TP4002
TP3702
VR3701
SECAM
DET.
VR4004
EE LEVEL
TP3701
IC3001

Y. C. P.C.BOARD

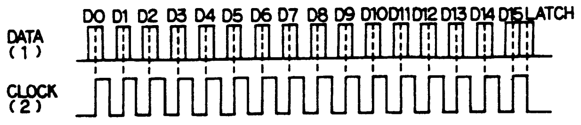

TP5601
TP4101
TP4102
VR4101
REC-C
VR4102
REC-Y

HEAD AMP P.C.BOARD

# TIMING CHART


OPERATION
MODE
POWER SW ON
CASSETTE INSERT
PLAY
FF/CUE
FF/CUE
PLAY
REW/REV
REW/REV
PLAY
PAUSE/ STILL
PAUSE/ STILL
STOP
FF
STOP
REW
POWER OFF
POWER ON
CASSETTE LOADING
TAPE LOADING
STAND BY
PLAY
CUE (LOWER)
CUE (UPPER)
PLAY
REVIEW (LOWER)
REVIEW (UPPER)
PLAY
STILL
PLAY
STAND BY
FF
STAND BY
REW
POWER ON Ⓛ (44)
LOADING MOTOR IC1003 (10)-(2)
BRAKE SOLENOID
MS SW 0 (24)
MS SW 1 (25)
MS SW 2 (26)
MS SW 3 (27)
FL SW (20)
CAPSTAN CONTROL
DRIVE CONT. CP2004 (2)
FORWARD/ REVERSE CP2004 (7)
CAPSTAN MOTOR POWER SUPPLY CP2004 (6) (VCO)
LIMITER CP2004 (4)
TU SENS (23)
CYL ON Ⓛ (39)
SERVO MODES (APPOINTED FROM IC1001)
PB CTL (36)
REC CTL IC2001 (22)
V.REC ST Ⓗ (60)
V. PB Ⓛ (56)
EE Ⓗ (62)
A.MUTE Ⓗ (61)
TRICK PB Ⓗ (64)
H
L
LD
12V
9V
0
UL
ON
OFF
FULL
RVS
FWD
18V HI-SPEED
14V NORMAL
NORMAL
STILL
IDLER S→T
IDLER T→S
BRAKE
CAPSTAN STILL PULSES
FF1
PB
CUE(LO)
CUE(HI)
X2
-PB
REV (LO)
REV (HI)
SLOW
FF2
FF4
VP ON
CAP AFC DET
(HI IMPEDANCE REC CTL IS OFF)
"H" LEVEL IS SUPPLIED FROM P.CON 5V THROUGH R1060
100
200
300
500
1000
120
130
60
40
18
X
Ⓐ
Ⓑ
Ⓒ
Ⓓ
Ⓔ
Ⓕ
Ⓖ
Ⓗ
Ⓘ
Ⓙ
Ⓚ
Ⓛ
Ⓜ
Ⓝ
Ⓞ
Ⓟ
Ⓠ
Ⓡ
Ⓢ
Ⓣ
Ⓤ
Ⓥ
Ⓦ
Ⓧ

NOTE : 1. SERVO MODE SET

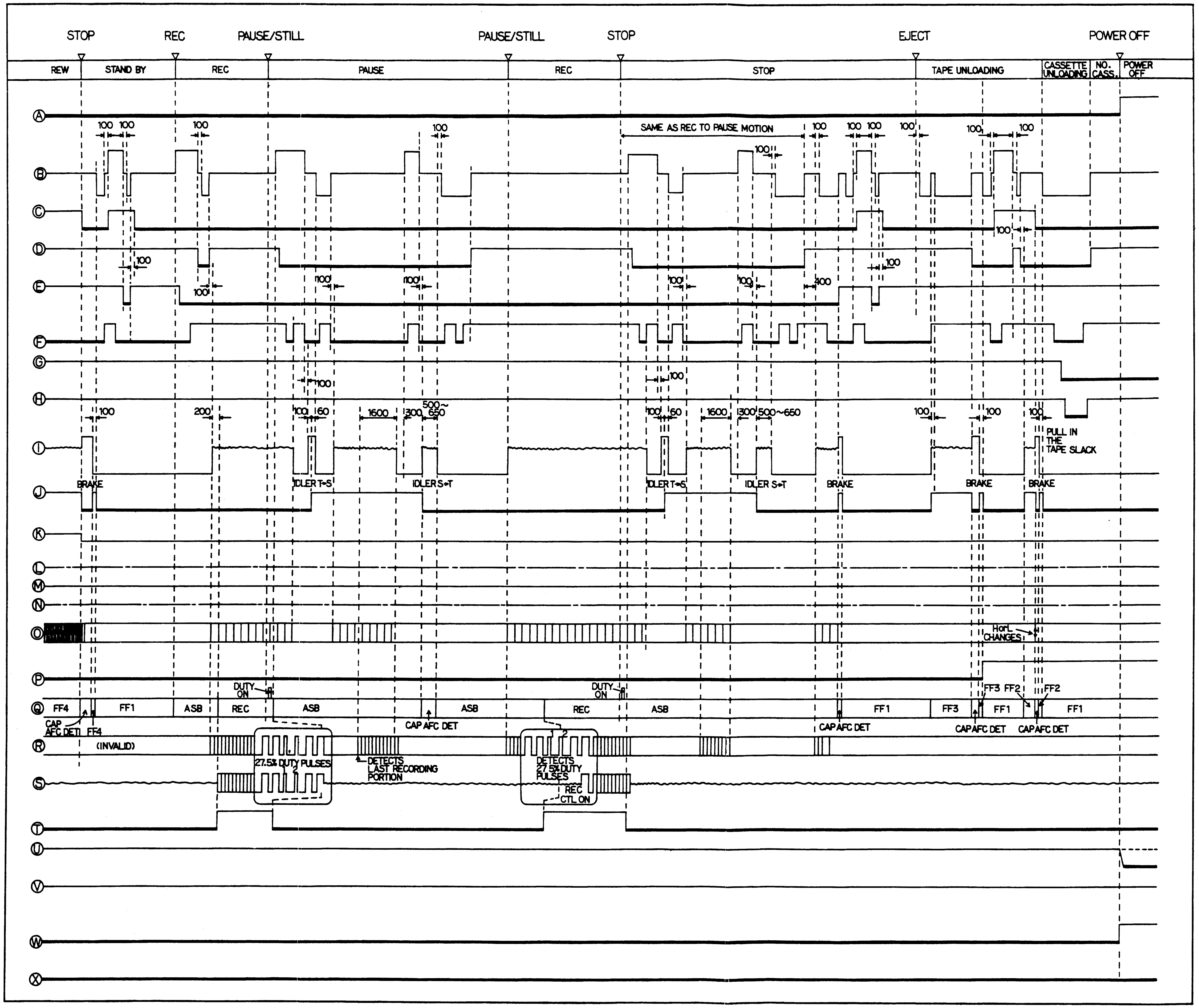

DATA (1)
D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 D14 D15 LATCH
CLOCK (2)

2. TIMING VALUES IN (ms)

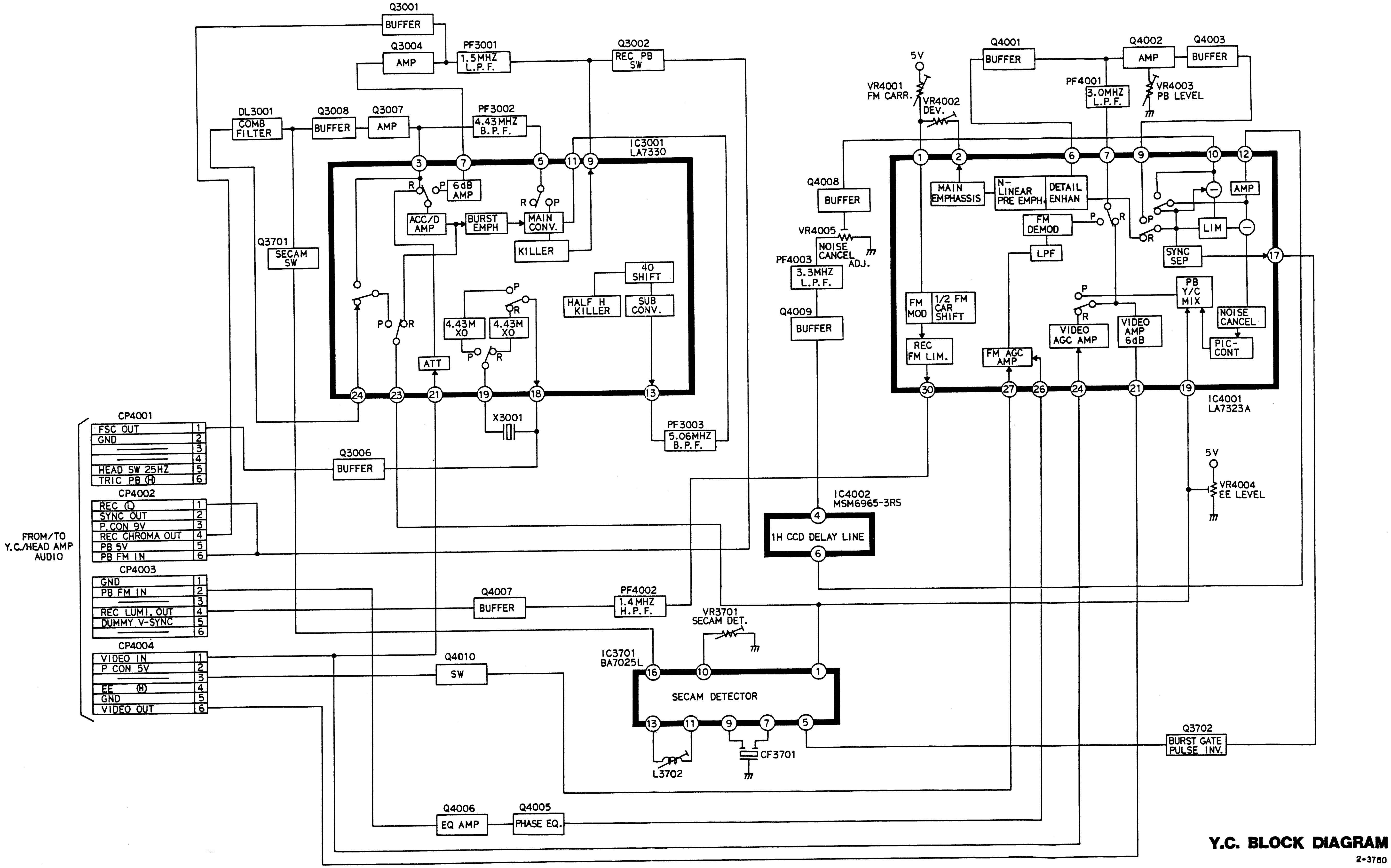
3. TIMING WAVE FORMS

| | |
|---|---|
| ——— HIGH | ═══ STAY HIGH or LOW |
| ━━━ LOW | ▥ ALTERNATELY HIGH and LOW |

# TIMING CHART


STOP
REC
PAUSE/STILL
PAUSE/STILL
STOP
EJECT
POWER OFF
REW
STAND BY
REC
PAUSE
REC
STOP
TAPE UNLOADING
CASSETTE UNLOADING
NO. CASS.
POWER OFF
Ⓐ
Ⓑ
Ⓒ
Ⓓ
Ⓔ
Ⓕ
Ⓖ
Ⓗ
Ⓘ
Ⓙ
Ⓚ
Ⓛ
Ⓜ
Ⓝ
Ⓞ
Ⓟ
Ⓠ
Ⓡ
Ⓢ
Ⓣ
Ⓤ
Ⓥ
Ⓦ
Ⓧ
SAME AS REC TO PAUSE MOTION
100
200
400
1600
300
500~650
160
60
BRAKE
IDLER T→S
IDLER S→T
PULL IN THE TAPE SLACK
H or L CHANGES
DUTY ON
FF4
FF1
ASB
REC
FF3
FF2
CAP AFC DET
CAP AFC DET FF4
(INVALID)
27.5% DUTY PULSES
DETECTS LAST RECORDING PORTION
DETECTS 27.5% DUTY PULSES
REC CTL ON
1
2

# Y.C. BLOCK DIAGRAM

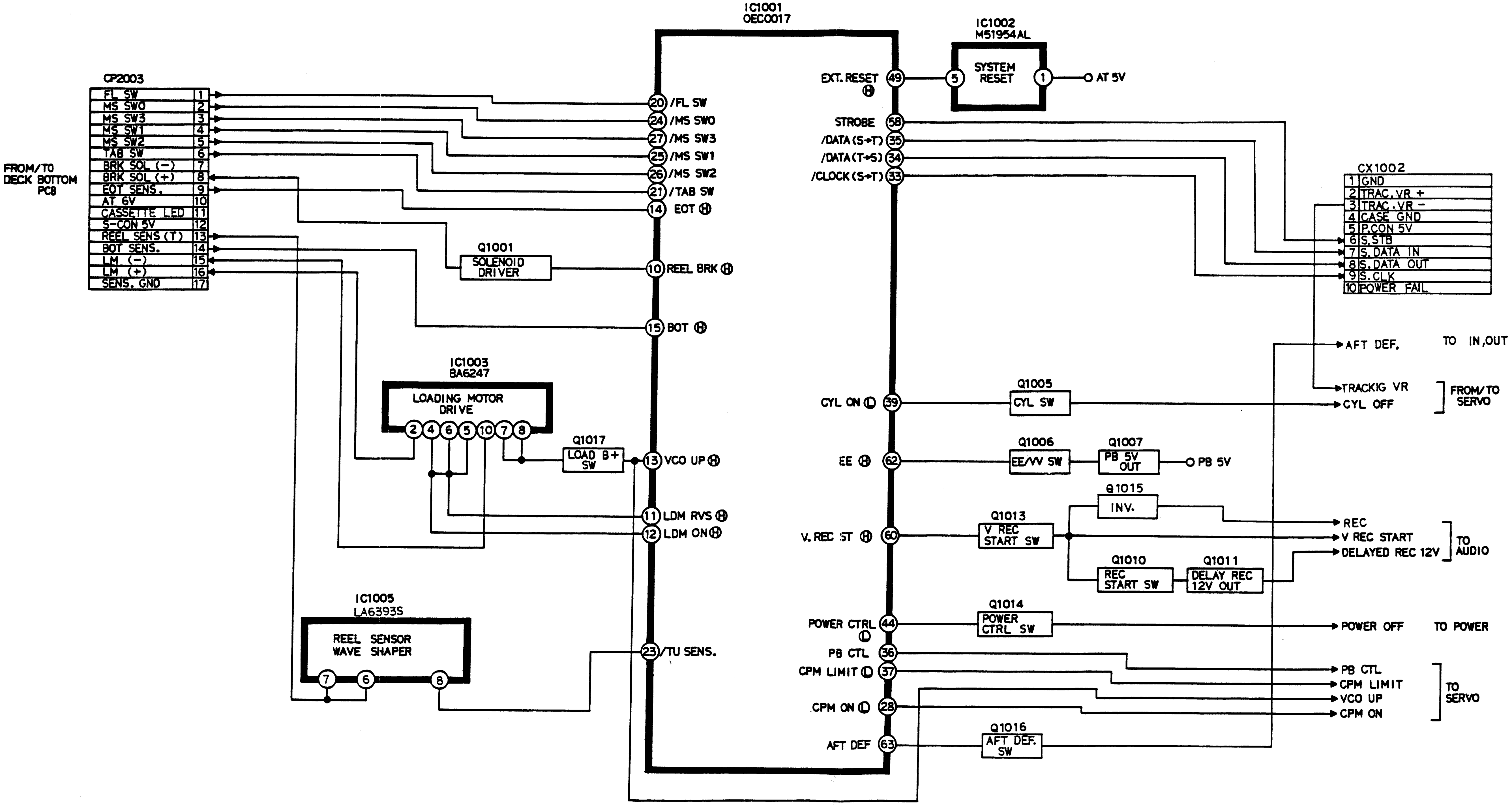


Q3001
BUFFER
Q3004
AMP
PF3001
1.5MHZ L.P.F.
Q3002
REC PB SW
DL3001
COMB FILTER
Q3008
BUFFER
Q3007
AMP
PF3002
4.43MHZ B.P.F.
IC3001
LA7330
6dB AMP
ACC/D AMP
BURST EMPH
MAIN CONV.
KILLER
40 SHIFT
HALF H KILLER
SUB CONV.
4.43M XO
4.43M XO
ATT
Q3701
SECAM SW
X3001
PF3003
5.06MHZ B.P.F.
Q3006
BUFFER
R
P
CP4001
FSC OUT
GND
HEAD SW 25HZ
TRIC PB (H)
CP4002
REC (L)
SYNC OUT
P.CON 9V
REC CHROMA OUT
PB 5V
PB FM IN
CP4003
GND
PB FM IN
REC LUMI. OUT
DUMMY V-SYNC
CP4004
VIDEO IN
P CON 5V
EE (H)
GND
VIDEO OUT
FROM/TO Y.C./HEAD AMP AUDIO
5V
VR4001 FM CARR.
VR4002 DEV.
Q4008
BUFFER
VR4005
NOISE CANCEL ADJ.
PF4003
3.3MHZ L.P.F.
Q4009
BUFFER
IC4002
MSM6965-3RS
1H CCD DELAY LINE
Q4001
BUFFER
Q4002
AMP
Q4003
BUFFER
PF4001
3.0MHZ L.P.F.
VR4003 PB LEVEL
MAIN EMPHASSIS
N-LINEAR PRE EMPH.
DETAIL ENHAN
FM DEMOD
LPF
AMP
LIM
SYNC SEP
PB Y/C MIX
NOISE CANCEL
PIC-CONT
FM MOD
1/2 FM CAR SHIFT
REC FM LIM.
FM AGC AMP
VIDEO AGC AMP
VIDEO AMP 6dB
IC4001
LA7323A
5V
VR4004 EE LEVEL
Q4007
BUFFER
PF4002
1.4MHZ H.P.F.
VR3701 SECAM DET.
IC3701
BA7025L
SECAM DETECTOR
L3702
CF3701
Q3702
BURST GATE PULSE INV.
Q4010
SW
Q4006
EQ AMP
Q4005
PHASE EQ.

**Y.C. BLOCK DIAGRAM**

2-3760

# SYSTEM CONTROL BLOCK DIAGRAM

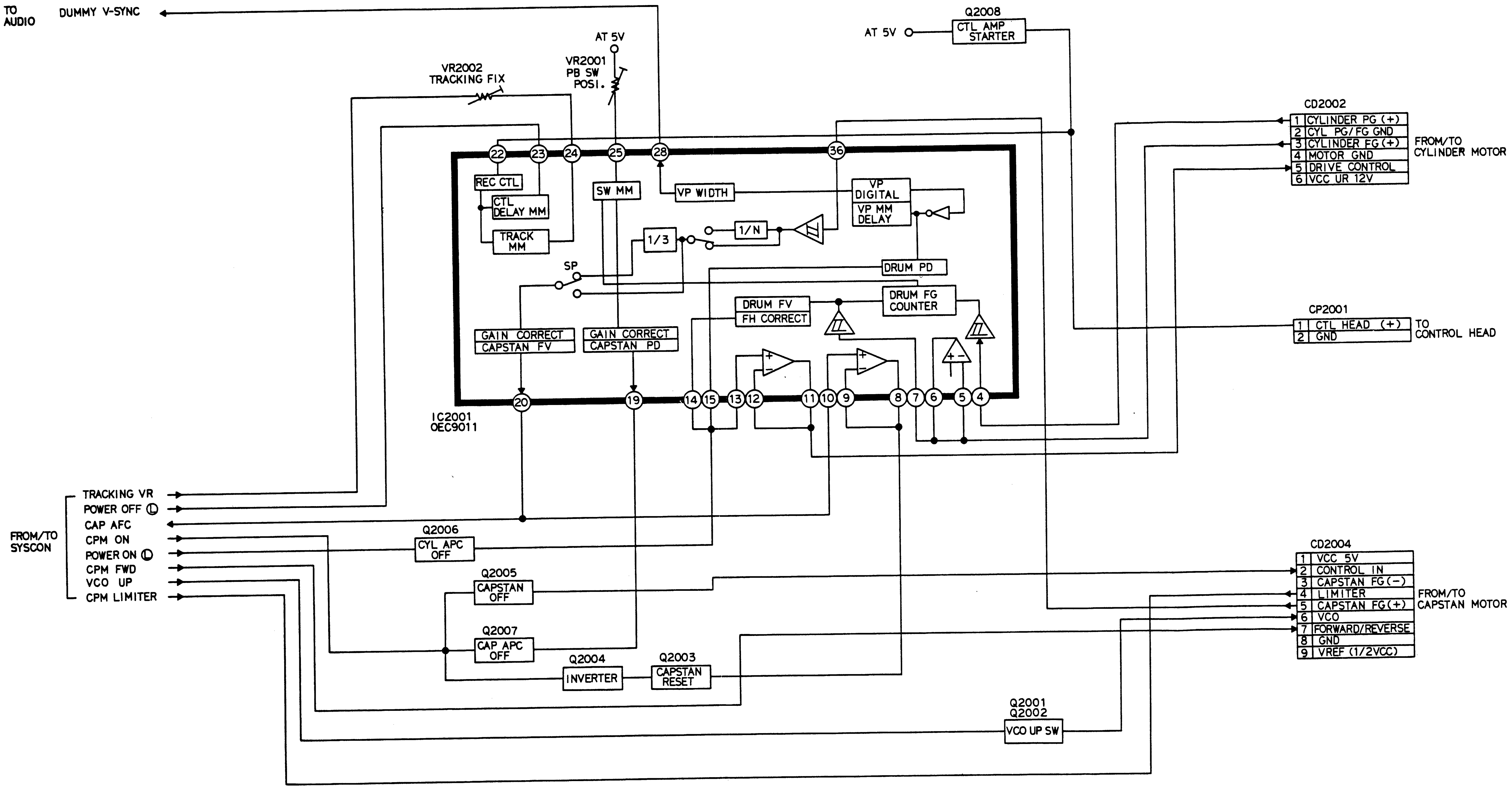


IC1001
OEC0017
IC1002
M51954AL
SYSTEM RESET
AT 5V
CP2003
FROM/TO DECK BOTTOM PCB
1 FL SW
2 MS SW0
3 MS SW3
4 MS SW1
5 MS SW2
6 TAB SW
7 BRK SOL (−)
8 BRK SOL (+)
9 EOT SENS.
10 AT 6V
11 CASSETTE LED
12 S-CON 5V
13 REEL SENS (T)
14 BOT SENS.
15 LM (−)
16 LM (+)
17 SENS. GND
20 /FL SW
24 /MS SW0
27 /MS SW3
25 /MS SW1
26 /MS SW2
21 /TAB SW
14 EOT H
Q1001
SOLENOID DRIVER
10 REEL BRK H
15 BOT H
IC1003
BA6247
LOADING MOTOR DRIVE
2 4 6 5 10 7 8
Q1017
LOAD B+ SW
13 VCO UP H
11 LDM RVS H
12 LDM ON H
IC1005
LA6393S
REEL SENSOR WAVE SHAPER
7 6 8
23 /TU SENS.
EXT. RESET H 49
STROBE 58
/DATA (S→T) 35
/DATA (T→S) 34
/CLOCK (S→T) 33
CX1002
1 GND
2 TRAC. VR +
3 TRAC. VR −
4 CASE GND
5 P.CON 5V
6 S.STB
7 S. DATA IN
8 S. DATA OUT
9 S. CLK
10 POWER FAIL
AFT DEF.
TO IN,OUT
TRACKIG VR
CYL OFF
FROM/TO SERVO
CYL ON L 39
Q1005
CYL SW
EE H 62
Q1006
EE/VV SW
Q1007
PB 5V OUT
PB 5V
Q1015
INV.
V. REC ST H 60
Q1013
V REC START SW
REC
V REC START
DELAYED REC 12V
TO AUDIO
Q1010
REC START SW
Q1011
DELAY REC 12V OUT
POWER CTRL L 44
Q1014
POWER CTRL SW
POWER OFF
TO POWER
PB CTL 36
CPM LIMIT L 37
CPM ON L 28
AFT DEF 63
Q1016
AFT DEF. SW
PB CTL
CPM LIMIT
VCO UP
CPM ON
TO SERVO

**SYSTEM CONTROL BLOCK DIAGRAM**

2-3603

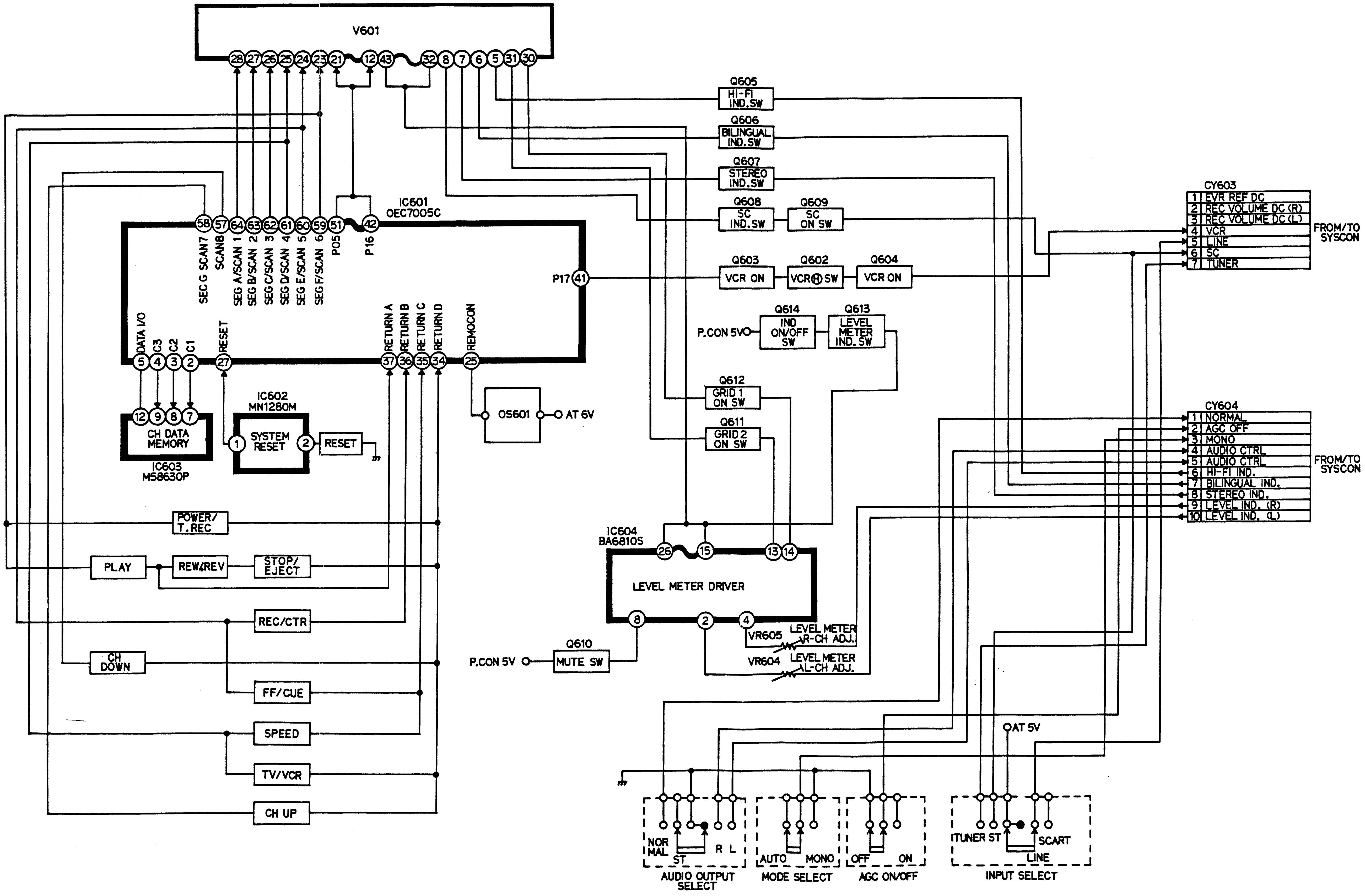
# SERVO BLOCK DIAGRAM


TO AUDIO
DUMMY V-SYNC
AT 5V
VR2001 PB SW POSI.
VR2002 TRACKING FIX
AT 5V
Q2008
CTL AMP STARTER
CD2002
1 CYLINDER PG (+)
2 CYL PG/FG GND
3 CYLINDER FG (+)
4 MOTOR GND
5 DRIVE CONTROL
6 VCC UR 12V
FROM/TO CYLINDER MOTOR
22
23
24
25
28
36
REC CTL
CTL DELAY MM
TRACK MM
SW MM
VP WIDTH
VP DIGITAL
VP MM DELAY
1/3
1/N
SP
DRUM PD
DRUM FG COUNTER
DRUM FV
FH CORRECT
GAIN CORRECT
CAPSTAN FV
GAIN CORRECT
CAPSTAN PD
20
19
14
15
13
12
11
10
9
8
7
6
5
4
IC2001 OEC9011
CP2001
1 CTL HEAD (+)
2 GND
TO CONTROL HEAD
FROM/TO SYSCON
TRACKING VR
POWER OFF Ⓛ
CAP AFC
CPM ON
POWER ON Ⓛ
CPM FWD
VCO UP
CPM LIMITER
Q2006
CYL APC OFF
Q2005
CAPSTAN OFF
Q2007
CAP APC OFF
Q2004
INVERTER
Q2003
CAPSTAN RESET
Q2001 Q2002
VCO UP SW
CD2004
1 VCC 5V
2 CONTROL IN
3 CAPSTAN FG(−)
4 LIMITER
5 CAPSTAN FG(+)
6 VCO
7 FORWARD/REVERSE
8 GND
9 VREF (1/2VCC)
FROM/TO CAPSTAN MOTOR

**SERVO BLOCK DIAGRAM**

2-3377

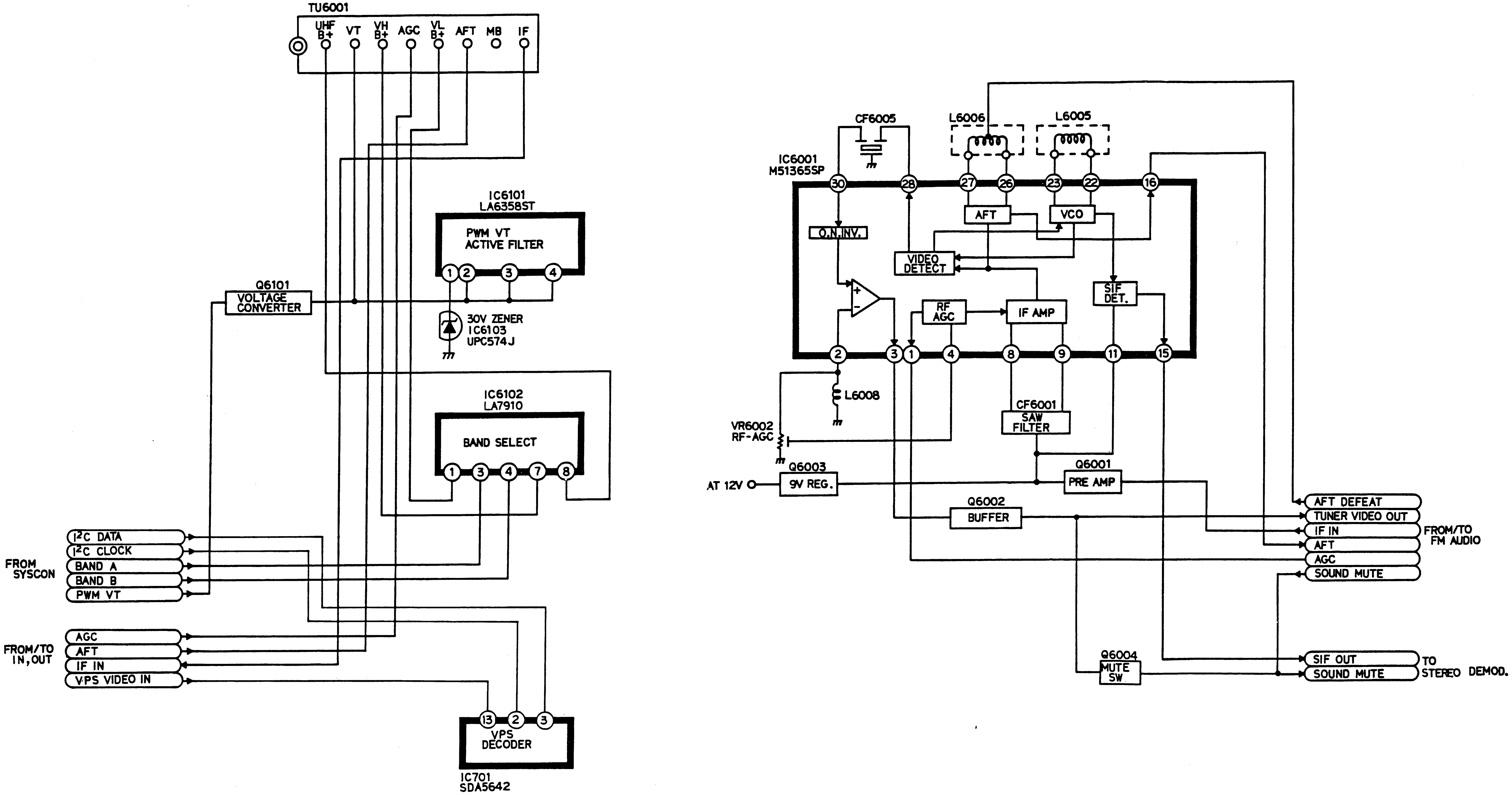
# OPERATION 1/2 BLOCK DIAGRAM


V601
28 27 26 25 24 23 21 12 43 32 8 7 6 5 31 30
Q605
HI-FI IND.SW
Q606
BILINGUAL IND.SW
Q607
STEREO IND.SW
Q608
SC IND.SW
Q609
SC ON SW
Q603
VCR ON
Q602
VCR⊕SW
Q604
VCR ON
Q614
IND ON/OFF SW
Q613
LEVEL METER IND.SW
P.CON 5V
Q612
GRID 1 ON SW
Q611
GRID 2 ON SW
IC601
OEC7005C
58 57 64 63 62 61 60 59 51 42
SEG G SCAN7
SCAN8
SEG A/SCAN 1
SEG B/SCAN 2
SEG C/SCAN 3
SEG D/SCAN 4
SEG E/SCAN 5
SEG F/SCAN 6
P05
P16
P17 41
DATA I/O
C3
C2
C1
RESET
RETURN A
RETURN B
RETURN C
RETURN D
REMOCON
5 4 3 2 27 37 36 35 34 25
12 9 8 7
CH DATA MEMORY
IC603
M58630P
IC602
MN1280M
SYSTEM RESET
1 2
RESET
OS601
AT 6V
CY603
1 EVR REF DC
2 REC VOLUME DC (R)
3 REC VOLUME DC (L)
4 VCR
5 LINE
6 SC
7 TUNER
FROM/TO SYSCON
CY604
1 NORMAL
2 AGC OFF
3 MONO
4 AUDIO CTRL
5 AUDIO CTRL
6 HI-FI IND.
7 BILINGUAL IND.
8 STEREO IND.
9 LEVEL IND. (R)
10 LEVEL IND. (L)
FROM/TO SYSCON
IC604
BA6810S
26 15 13 14
LEVEL METER DRIVER
8 2 4
VR605
LEVEL METER R-CH ADJ.
VR604
LEVEL METER L-CH ADJ.
Q610
P.CON 5V
MUTE SW
POWER/ T.REC
PLAY
REW&REV
STOP/ EJECT
REC/CTR
CH DOWN
FF/CUE
SPEED
TV/VCR
CH UP
AT 5V
NOR MAL
ST
R L
AUDIO OUTPUT SELECT
AUTO
MONO
MODE SELECT
OFF
ON
AGC ON/OFF
TUNER ST
SCART
LINE
INPUT SELECT

# OPERATION 1/2 BLOCK DIAGRAM

2-3747

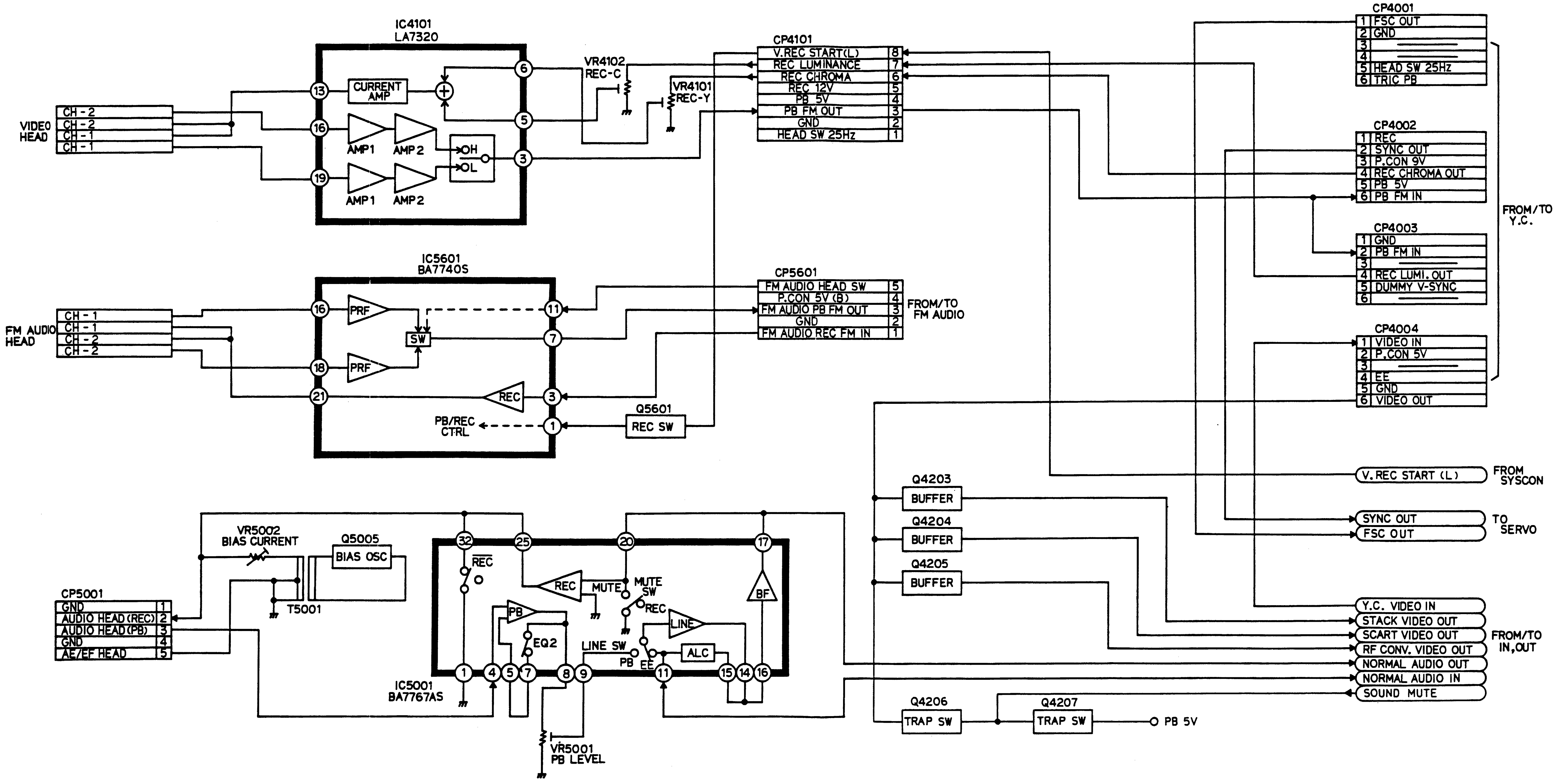
# TUNER /IF BLOCK DIAGRAM


TU6001
UHF B+
VT
VH B+
AGC
VL B+
AFT
MB
IF
IC6101
LA6358ST
PWM VT
ACTIVE FILTER
Q6101
VOLTAGE CONVERTER
30V ZENER
IC6103
UPC574J
IC6102
LA7910
BAND SELECT
FROM SYSCON
I²C DATA
I²C CLOCK
BAND A
BAND B
PWM VT
FROM/TO IN,OUT
AGC
AFT
IF IN
VPS VIDEO IN
VPS DECODER
IC701
SDA5642
CF6005
L6006
L6005
IC6001
M51365SP
O.N.INV.
VIDEO DETECT
AFT
VCO
RF AGC
IF AMP
SIF DET.
L6008
VR6002
RF-AGC
CF6001
SAW FILTER
AT 12V
Q6003
9V REG.
Q6001
PRE AMP
Q6002
BUFFER
AFT DEFEAT
TUNER VIDEO OUT
IF IN
AFT
AGC
SOUND MUTE
FROM/TO FM AUDIO
Q6004
MUTE SW
SIF OUT
SOUND MUTE
TO STEREO DEMOD.

**TUNER /IF BLOCK DIAGRAM**

2-3761

# HEAD AMP/NORMAL AUDIO BLOCK DIAGRAM

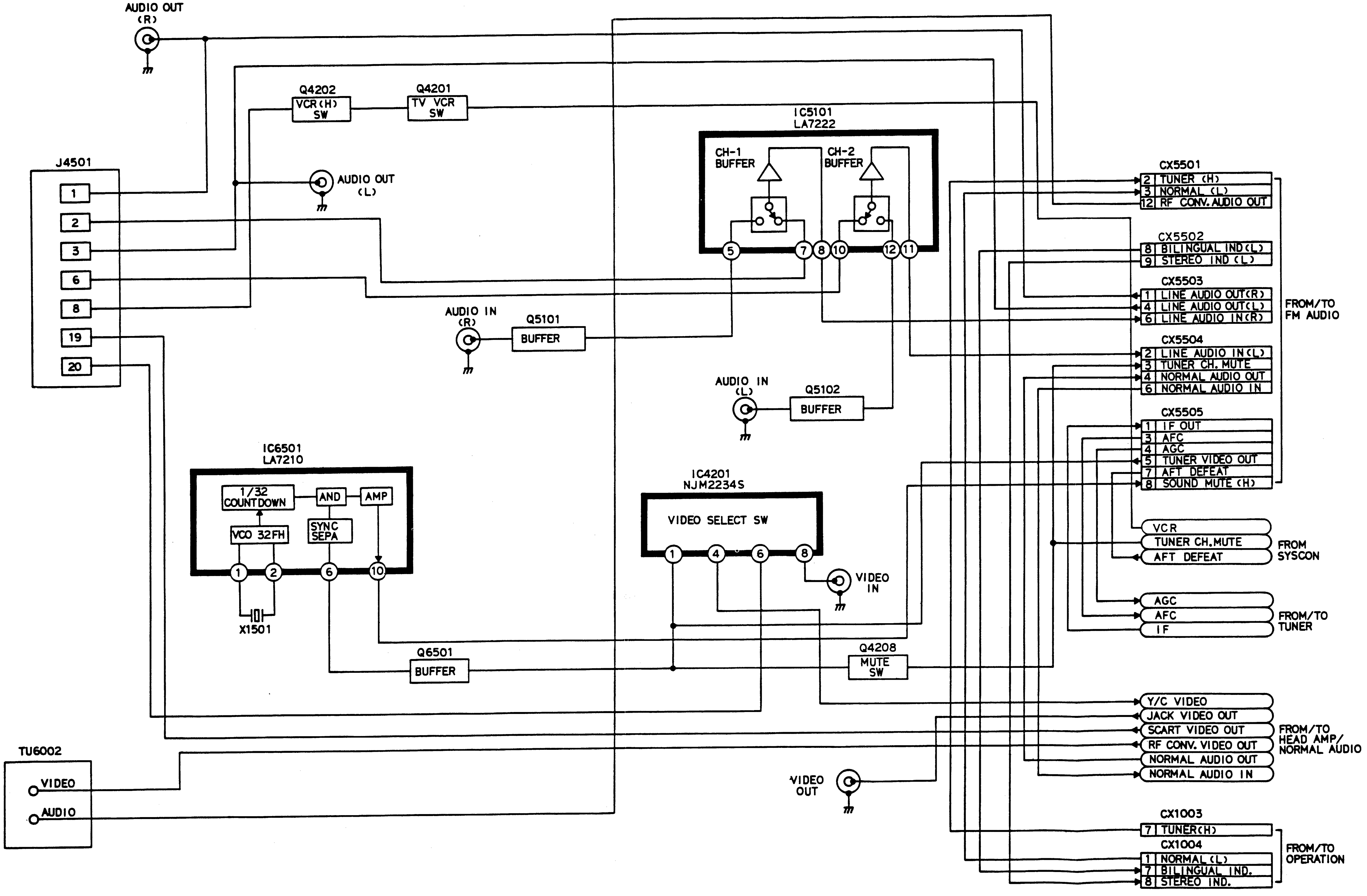


IC4101
LA7320
CURRENT AMP
AMP1
AMP2
OH
OL
VIDEO HEAD
CH-2
CH-2
CH-1
CH-1
VR4102
REC-C
VR4101
REC-Y
CP4101
V.REC START(L) 8
REC LUMINANCE 7
REC CHROMA 6
REC 12V 5
PB 5V 4
PB FM OUT 3
GND 2
HEAD SW 25Hz 1
IC5601
BA7740S
PRF
SW
REC
PB/REC CTRL
FM AUDIO HEAD
CH-1
CH-1
CH-2
CH-2
CP5601
FM AUDIO HEAD SW 5
P.CON 5V (B) 4
FM AUDIO PB FM OUT 3
GND 2
FM AUDIO REC FM IN 1
FROM/TO FM AUDIO
Q5601
REC SW
CP4001
1 FSC OUT
2 GND
3
4
5 HEAD SW 25Hz
6 TRIC PB
CP4002
1 REC
2 SYNC OUT
3 P.CON 9V
4 REC CHROMA OUT
5 PB 5V
6 PB FM IN
CP4003
1 GND
2 PB FM IN
3
4 REC LUMI. OUT
5 DUMMY V-SYNC
6
CP4004
1 VIDEO IN
2 P.CON 5V
3
4 EE
5 GND
6 VIDEO OUT
FROM/TO Y.C.
V.REC START (L)
FROM SYSCON
SYNC OUT
FSC OUT
TO SERVO
Q4203
BUFFER
Q4204
BUFFER
Q4205
BUFFER
Y.C. VIDEO IN
STACK VIDEO OUT
SCART VIDEO OUT
RF CONV. VIDEO OUT
NORMAL AUDIO OUT
NORMAL AUDIO IN
SOUND MUTE
FROM/TO IN,OUT
Q4206
TRAP SW
Q4207
TRAP SW
PB 5V
VR5002
BIAS CURRENT
Q5005
BIAS OSC
T5001
CP5001
GND 1
AUDIO HEAD (REC) 2
AUDIO HEAD (PB) 3
GND 4
AE/EF HEAD 5
IC5001
BA7767AS
REC
REC
MUTE
MUTE SW
REC
PB
EQ2
LINE
LINE SW
PB
EE
ALC
BF
VR5001
PB LEVEL

HEAD AMP/NORMAL AUDIO BLOCK DIAGRAM

2-3558

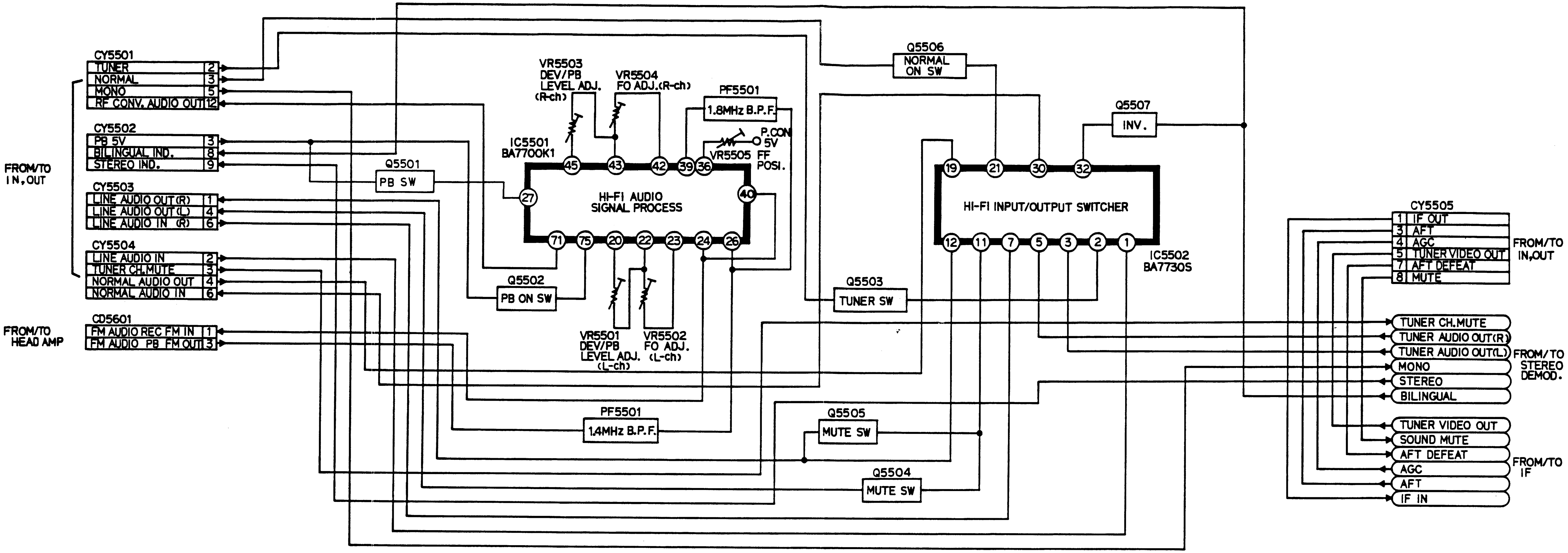
# IN,OUT/ 21PIN BLOCK DIAGRAM


AUDIO OUT (R)
AUDIO OUT (L)
AUDIO IN (R)
AUDIO IN (L)
VIDEO IN
VIDEO OUT
J4501
1
2
3
6
8
19
20
Q4202
VCR(H) SW
Q4201
TV VCR SW
IC5101
LA7222
CH-1 BUFFER
CH-2 BUFFER
5
7
8
10
12
11
Q5101
BUFFER
Q5102
BUFFER
IC6501
LA7210
1/32 COUNTDOWN
AND
AMP
VCO 32FH
SYNC SEPA
1
2
6
10
X1501
Q6501
BUFFER
IC4201
NJM2234S
VIDEO SELECT SW
1
4
6
8
Q4208
MUTE SW
TU6002
VIDEO
AUDIO
CX5501
2 TUNER (H)
3 NORMAL (L)
12 RF CONV. AUDIO OUT
CX5502
8 BILINGUAL IND(L)
9 STEREO IND (L)
CX5503
1 LINE AUDIO OUT(R)
4 LINE AUDIO OUT(L)
6 LINE AUDIO IN(R)
FROM/TO FM AUDIO
CX5504
2 LINE AUDIO IN(L)
3 TUNER CH. MUTE
4 NORMAL AUDIO OUT
6 NORMAL AUDIO IN
CX5505
1 IF OUT
3 AFC
4 AGC
5 TUNER VIDEO OUT
7 AFT DEFEAT
8 SOUND MUTE (H)
VCR
TUNER CH.MUTE
AFT DEFEAT
FROM SYSCON
AGC
AFC
IF
FROM/TO TUNER
Y/C VIDEO
JACK VIDEO OUT
SCART VIDEO OUT
RF CONV. VIDEO OUT
NORMAL AUDIO OUT
NORMAL AUDIO IN
FROM/TO HEAD AMP/ NORMAL AUDIO
CX1003
7 TUNER(H)
CX1004
1 NORMAL (L)
7 BILINGUAL IND.
8 STEREO IND.
FROM/TO OPERATION

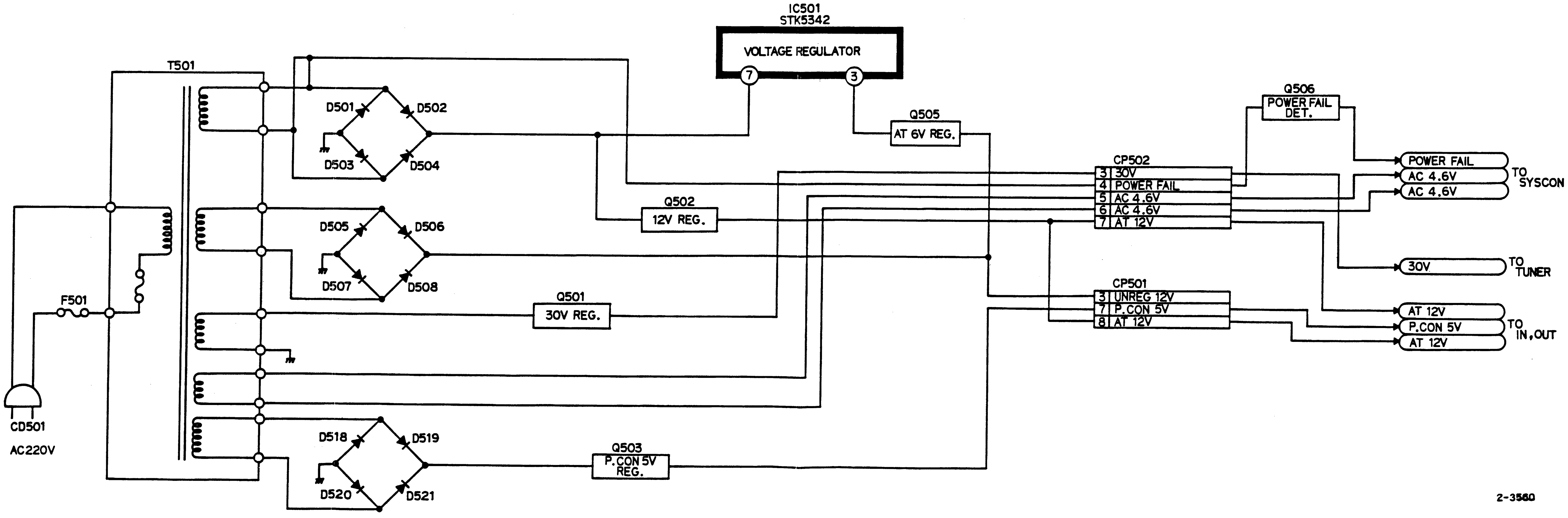
**IN,OUT/ 21PIN BLOCK DIAGRAM**

2-3604

# FM AUDIO BLOCK DIAGRAM

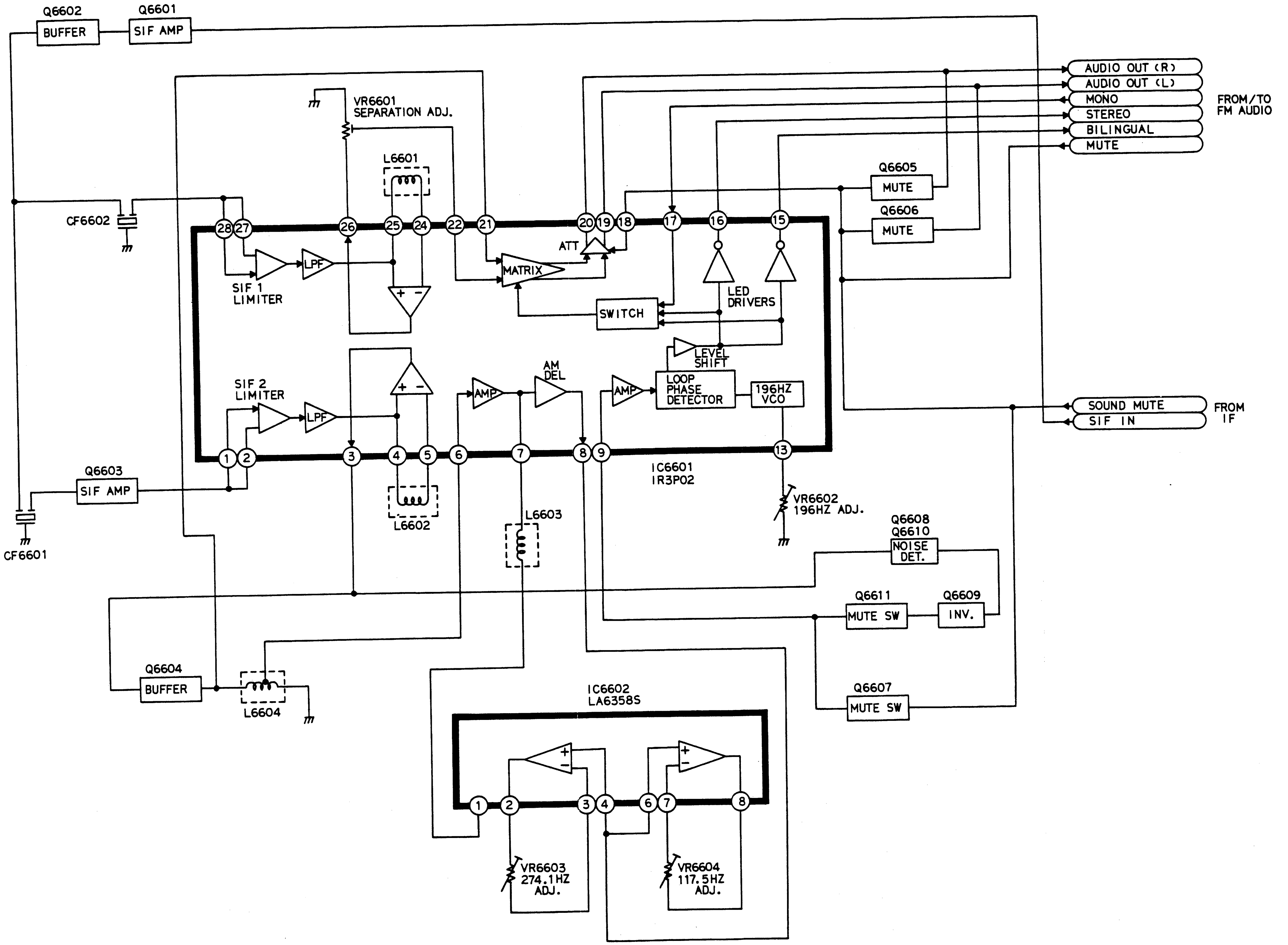

CY5501
TUNER 2
NORMAL 3
MONO 5
RF CONV. AUDIO OUT 12
CY5502
PB 5V 3
BILINGUAL IND. 8
STEREO IND. 9
FROM/TO IN,OUT
CY5503
LINE AUDIO OUT (R) 1
LINE AUDIO OUT (L) 4
LINE AUDIO IN (R) 6
CY5504
LINE AUDIO IN 2
TUNER CH.MUTE 3
NORMAL AUDIO OUT 4
NORMAL AUDIO IN 6
CD5601
FM AUDIO REC FM IN 1
FM AUDIO PB FM OUT 3
FROM/TO HEAD AMP
Q5501
PB SW
Q5502
PB ON SW
VR5503 DEV/PB LEVEL ADJ. (R-ch)
VR5504 FO ADJ. (R-ch)
PF5501
1.8MHz B.P.F.
P.CON 5V
VR5505 FF POSI.
IC5501
BA7700K1
HI-FI AUDIO SIGNAL PROCESS
45 43 42 39 36 27 40 71 75 20 22 23 24 26
VR5501 DEV/PB LEVEL ADJ. (L-ch)
VR5502 FO ADJ. (L-ch)
PF5501
1.4MHz B.P.F.
Q5506
NORMAL ON SW
Q5507
INV.
HI-FI INPUT/OUTPUT SWITCHER
19 21 30 32 12 11 7 5 3 2 1
IC5502
BA7730S
Q5503
TUNER SW
Q5505
MUTE SW
Q5504
MUTE SW
CY5505
1 IF OUT
3 AFT
4 AGC
5 TUNER VIDEO OUT
7 AFT DEFEAT
8 MUTE
FROM/TO IN,OUT
TUNER CH.MUTE
TUNER AUDIO OUT(R)
TUNER AUDIO OUT(L)
MONO
STEREO
BILINGUAL
FROM/TO STEREO DEMOD.
TUNER VIDEO OUT
SOUND MUTE
AFT DEFEAT
AGC
AFT
IF IN
FROM/TO IF

# POWER SUPPLY BLOCK DIAGRAM


IC501
STK5342
VOLTAGE REGULATOR
7
3
T501
D501
D502
D503
D504
D505
D506
D507
D508
D518
D519
D520
D521
F501
CD501
AC220V
Q505
AT 6V REG.
Q502
12V REG.
Q501
30V REG.
Q503
P.CON 5V REG.
Q506
POWER FAIL DET.
CP502
3 30V
4 POWER FAIL
5 AC 4.6V
6 AC 4.6V
7 AT 12V
POWER FAIL
AC 4.6V
AC 4.6V
TO SYSCON
30V
TO TUNER
CP501
3 UNREG 12V
7 P.CON 5V
8 AT 12V
AT 12V
P.CON 5V
AT 12V
TO IN,OUT

2-3580

# STEREO DEMODULATOR BLOCK DIAGRAM

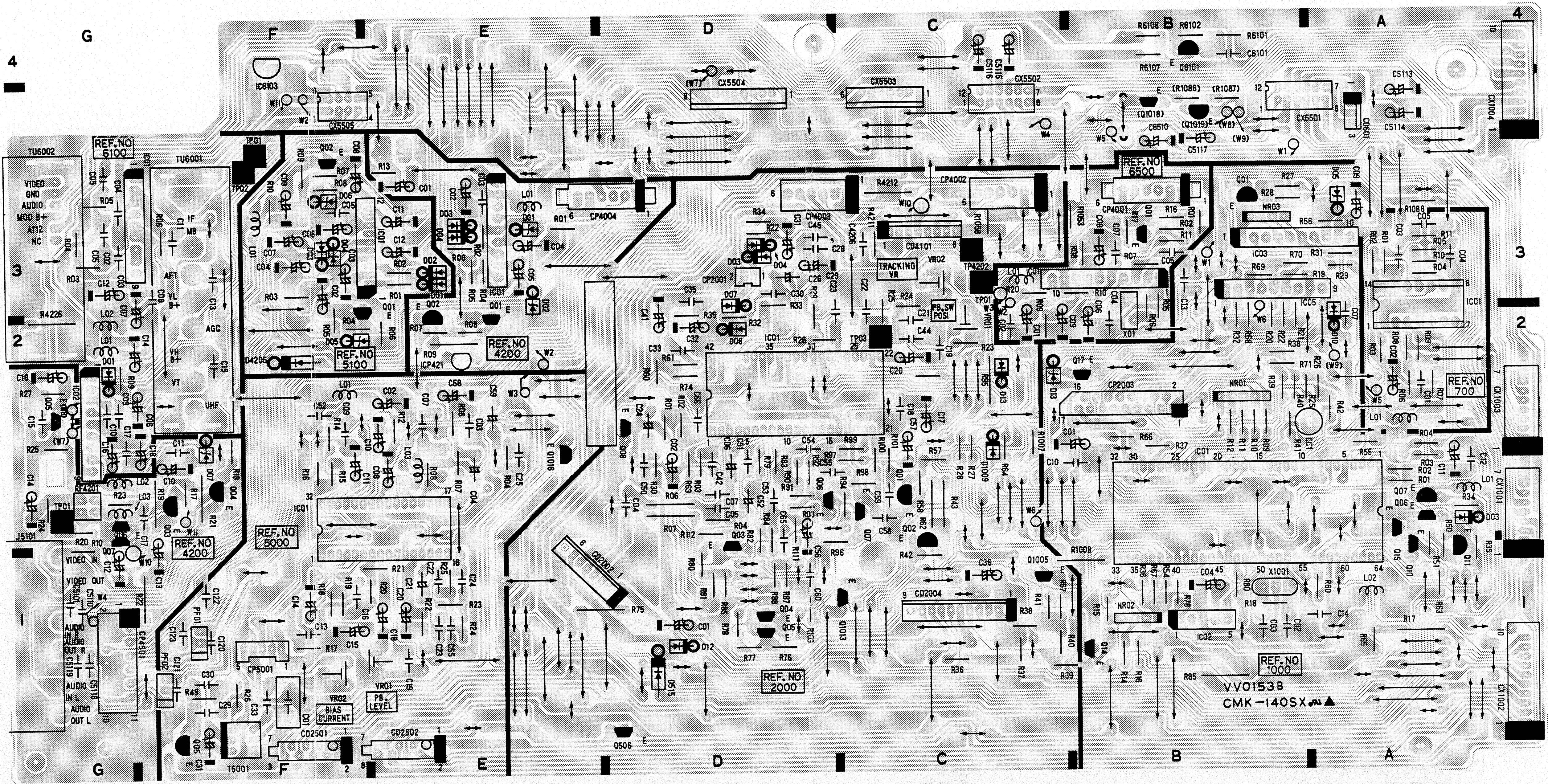

Q6602
BUFFER
Q6601
SIF AMP
VR6601
SEPARATION ADJ.
L6601
CF6602
28
27
26
25
24
22
21
20
19
18
17
16
15
ATT
MATRIX
SIF 1
LIMITER
LPF
+
-
SWITCH
LED
DRIVERS
LEVEL
SHIFT
LOOP
PHASE
DETECTOR
196HZ
VCO
SIF 2
LIMITER
AMP
AM
DEL
1
2
3
4
5
6
7
8
9
13
IC6601
IR3P02
Q6603
SIF AMP
L6602
L6603
CF6601
VR6602
196HZ ADJ.
AUDIO OUT (R)
AUDIO OUT (L)
MONO
STEREO
BILINGUAL
MUTE
FROM/TO
FM AUDIO
Q6605
MUTE
Q6606
MUTE
SOUND MUTE
SIF IN
FROM
IF
Q6608
Q6610
NOISE
DET.
Q6611
MUTE SW
Q6609
INV.
Q6607
MUTE SW
Q6604
BUFFER
L6604
IC6602
LA6358S
VR6603
274.1HZ
ADJ.
VR6604
117.5HZ
ADJ.

**STEREO DEMODULATOR BLOCK DIAGRAM**

2-3325

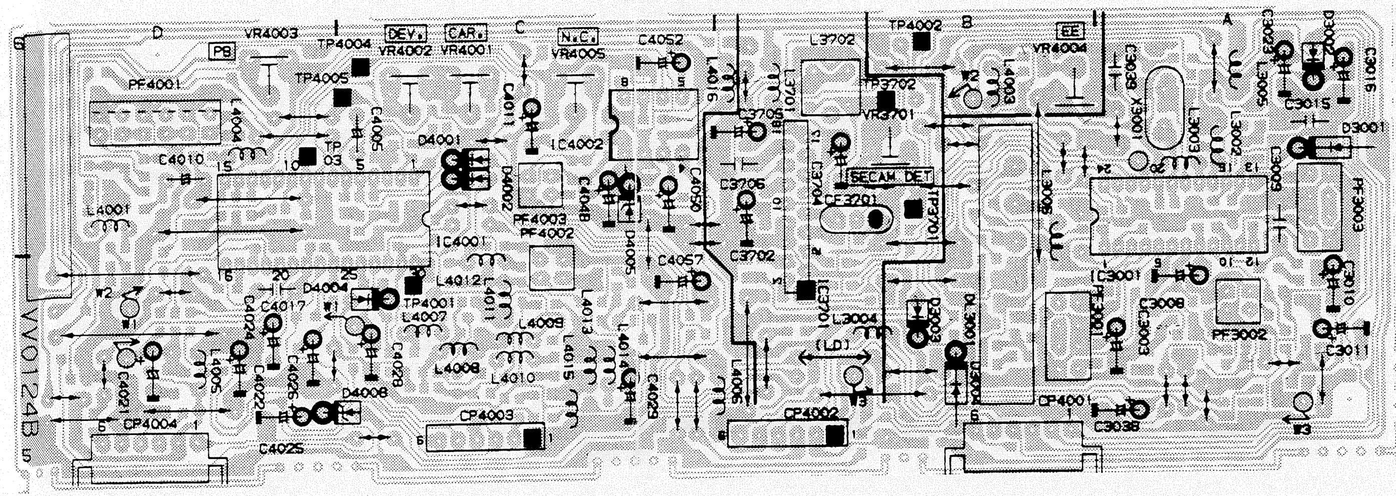
# PRINTED CIRCUIT BOARDS

## MAIN

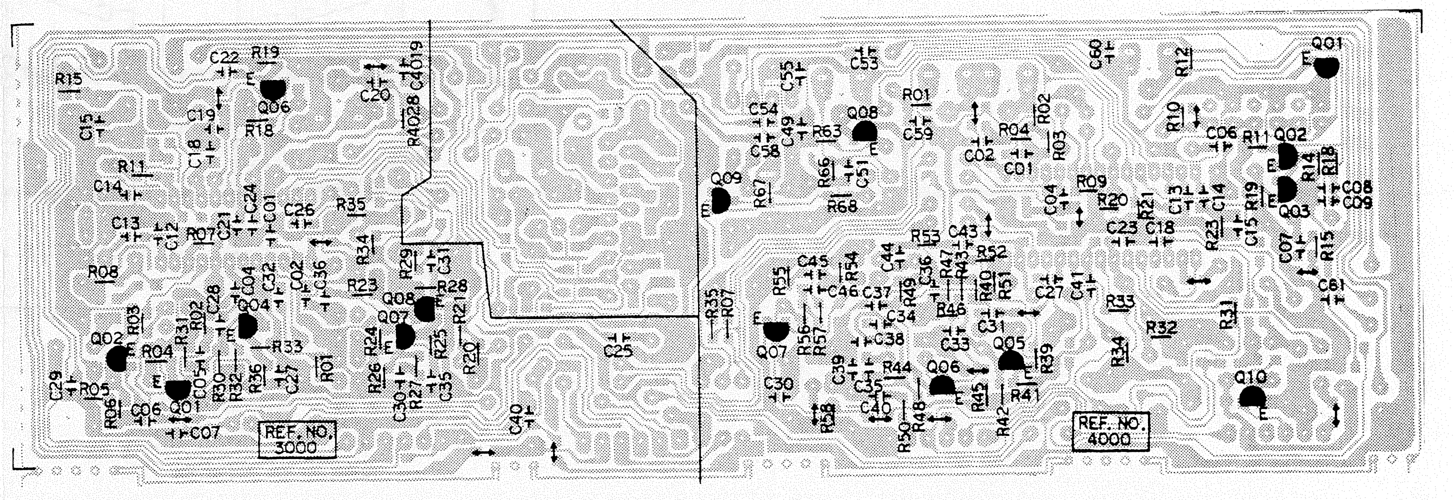

REF. NO 6100
REF. NO 5100
REF. NO 4200
REF. NO 5000
REF. NO 6500
REF. NO 700
REF. NO 2000
REF. NO 1000
TRACKING VR
PB SW POSI
VR01 PB LEVEL
VR02 BIAS CURRENT
VV0153B
CMK-140SX
A
B
C
D
E
F
G
1
2
3
4

## Y. C.

### COMPONENT SIDE


PB
DEV.
CAR.
N.C.
EE
SECAM DET
VV0124B
A
B
C
D

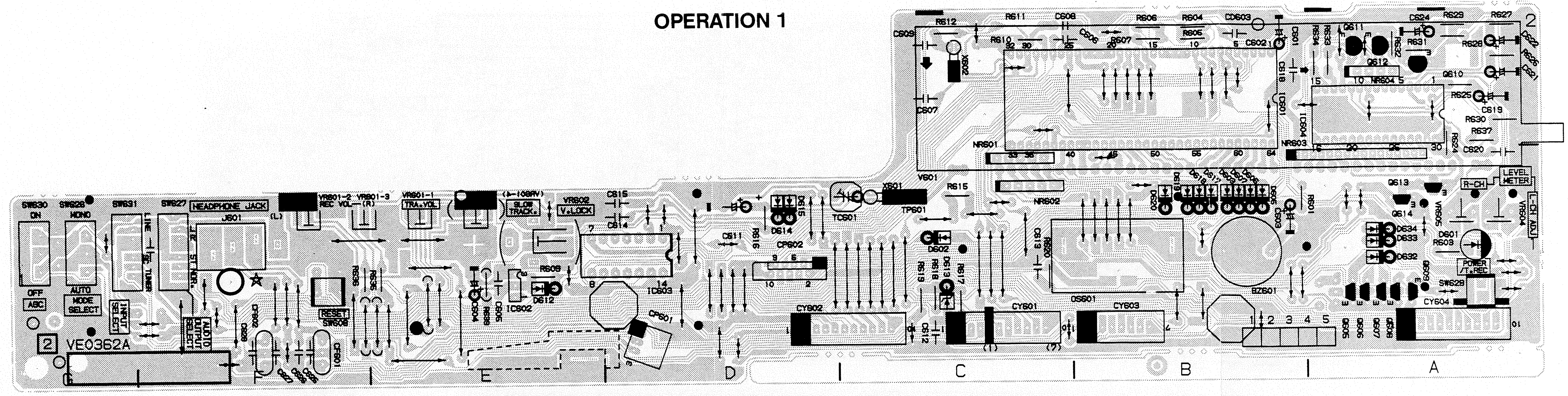
### SOLDER SIDE


REF. NO. 3000
REF. NO. 4000

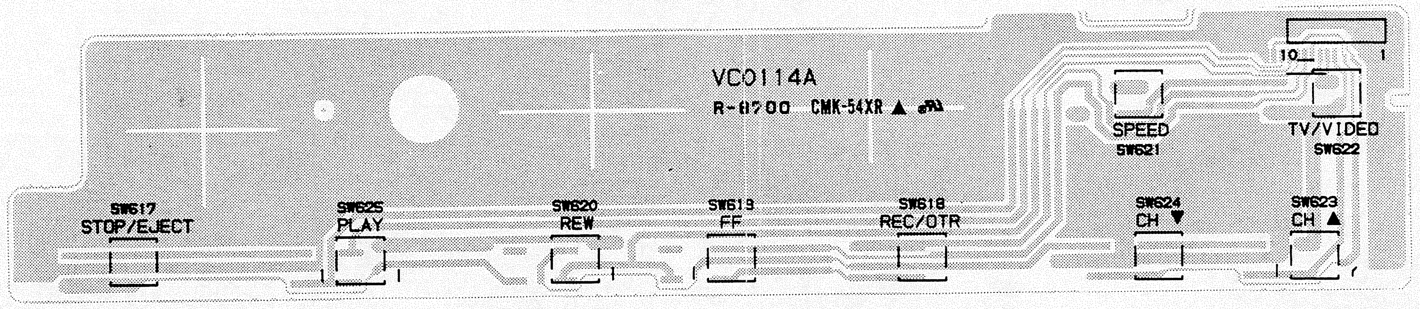
# PRINTED CIRCUIT BOARDS

# PRINTED CIRCUIT BOARDS

## OPERATION 1

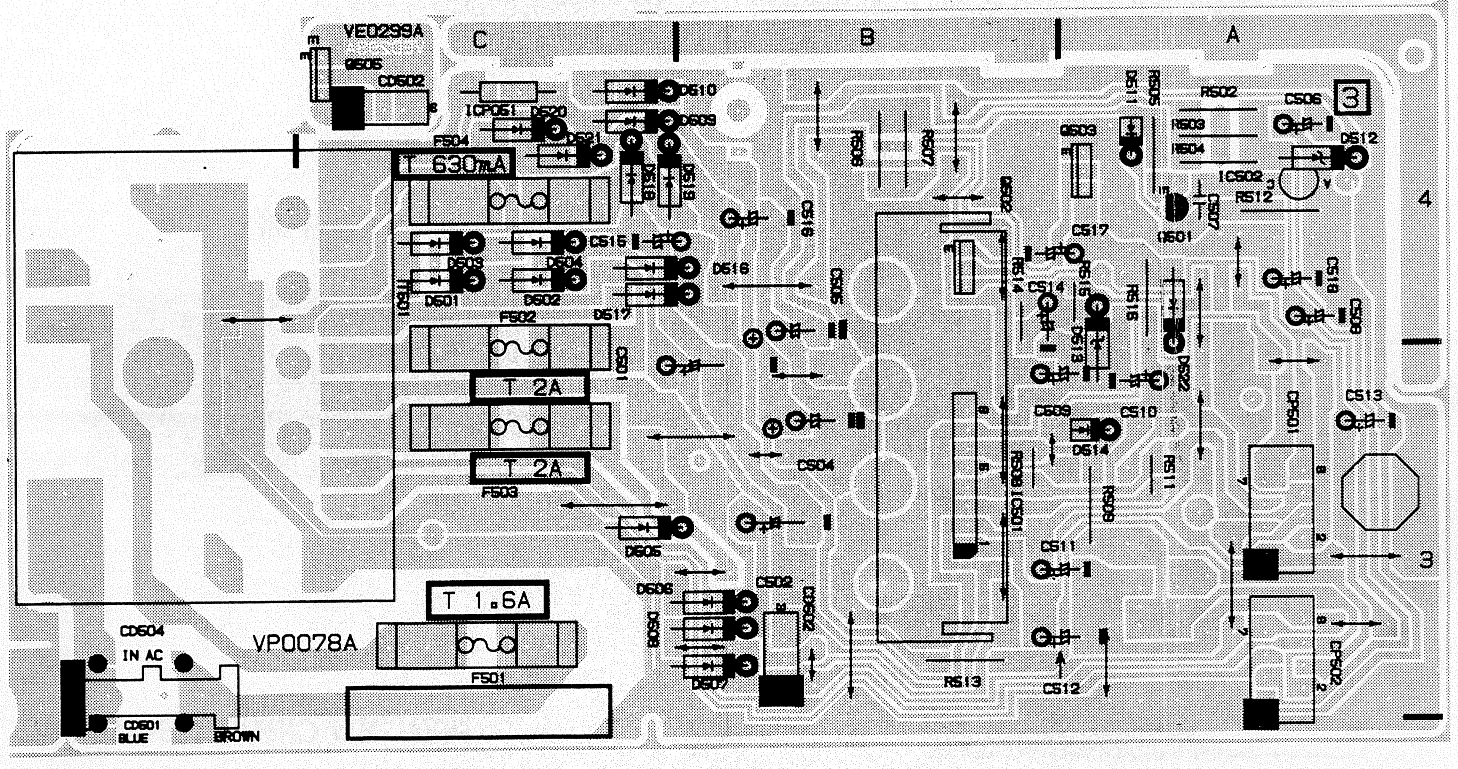

SW630 DN
SW626 MONO
SW631
SW627
HEADPHONE JACK
J601
VR601-2 VR601-3 REC VOL (L) (R)
VR601-1 TRA.VOL
SLOW TRACK
VR602 V.LOCK
OFF ABC
AUTO MODE SELECT
INPUT SELECT
AUDIO OUTPUT SELECT
RESET SW606
2 VE0362A
IC602
IC603
CP601
TCS01
TP601
NRS01
NRS02
NRS03
NRS04
BZ601
CY602
CY601
CY603
CY604
DS601
SW628
POWER /T.REC
LEVEL METER
R-CH
L-CH ADJ
A
B
C
D
E

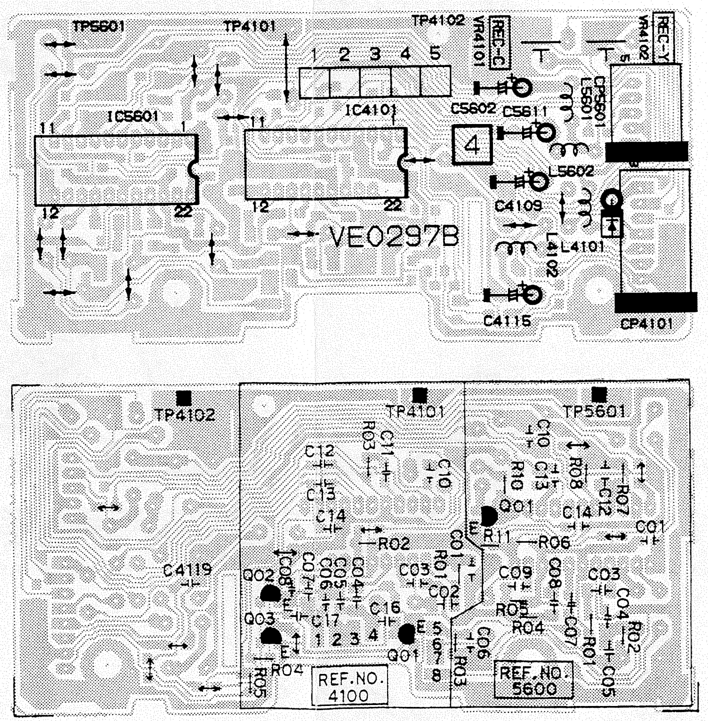
## OPERATION 2


VC0114A
R-8700 CMK-54XR
SPEED SW621
TV/VIDEO SW622
SW617 STOP/EJECT
SW625 PLAY
SW620 REW
SW619 FF
SW618 REC/OTR
SW624 CH ▼
SW623 CH ▲

## HEAD AMP

## POWER SUPPLY / TRANSISTOR


VE0299A
C
B
A
CD502
T 630mA
F504
F502
T 2A
F503
T 2A
T 1.6A
F501
VP0078A
CD604
IN AC
CD501 BLUE
BROWN
IC501
IC502
CP501
CP502
3
4

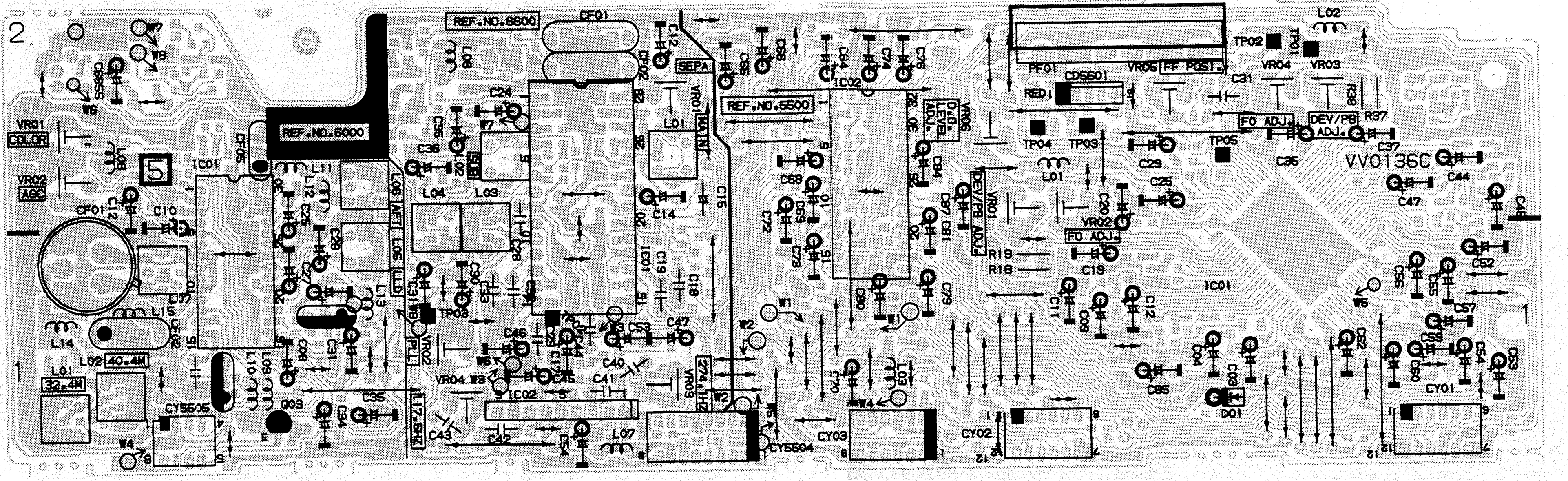

TP5601
TP4101
TP4102
REC-C VR4101
REC-Y VR4102
IC5601
IC4101
VE0297B
4
CP5601
CP4101
L5601
L5602
L4101
L4102
C4109
C4115
C4119
REF.NO. 4100
REF.NO. 5600

COMPONENT SIDE

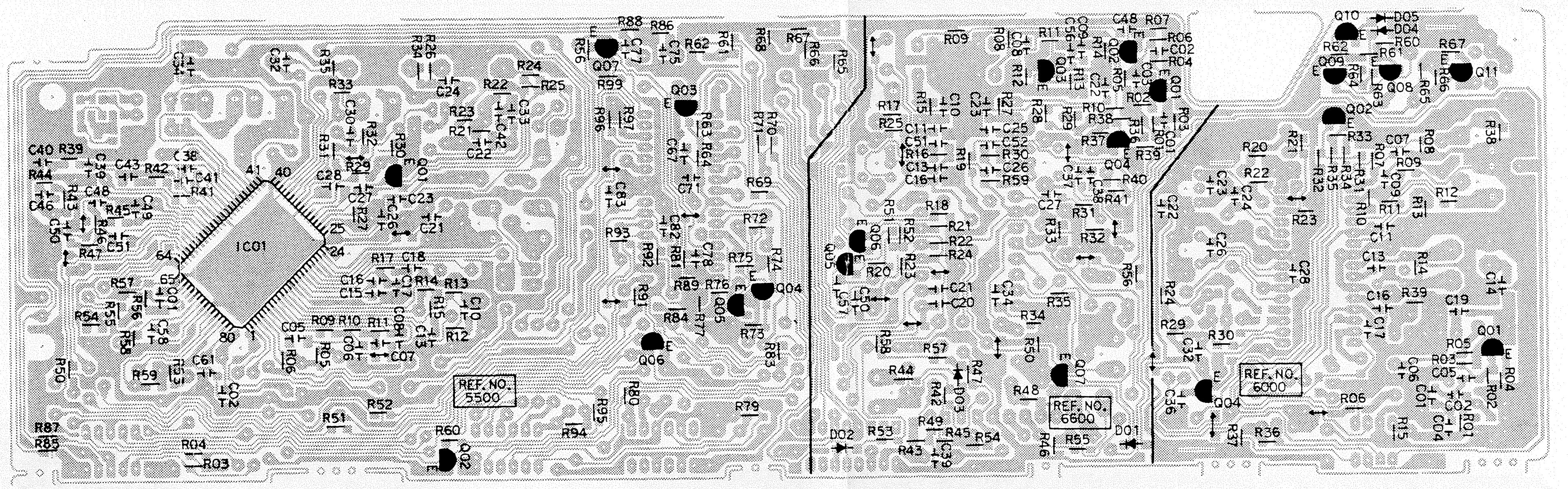
SOLDER SIDE

# PRINTED CIRCUIT BOARDS

## HI-FI

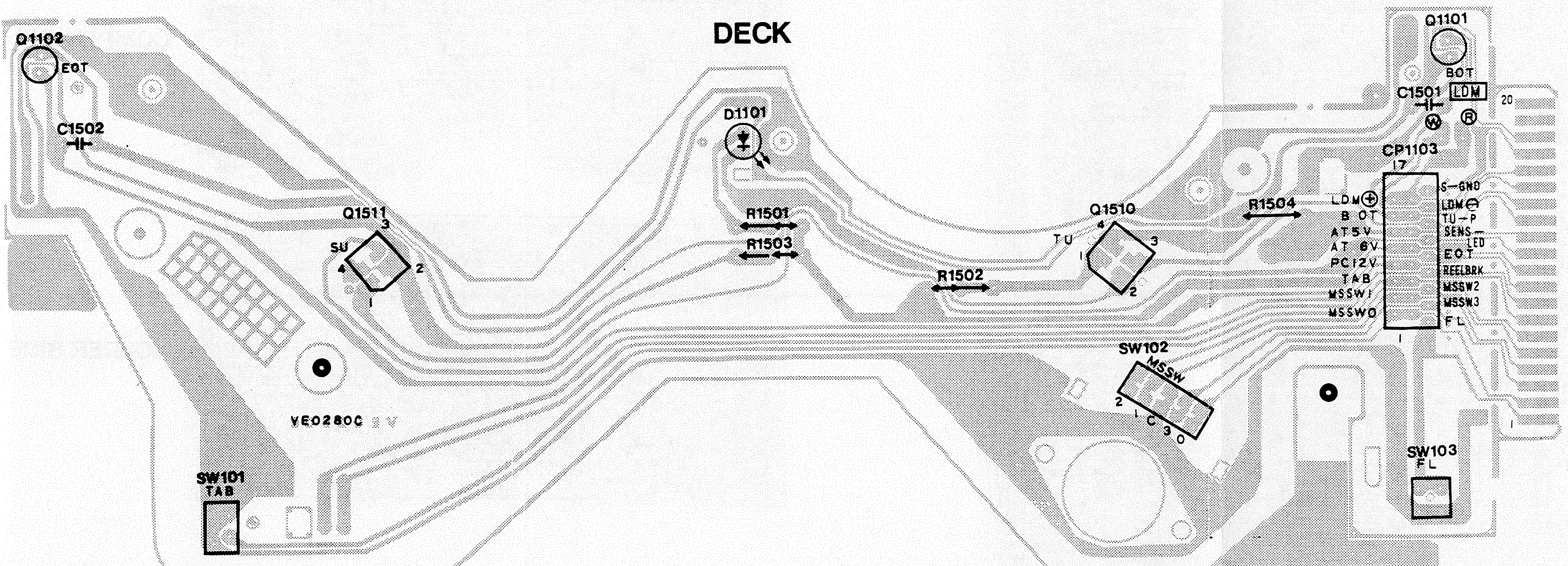

REF.NO.6600
REF.NO.6000
REF.NO.5500
VR01 COLOR
VR02 AGC
IC01
IC02
CF01
L01 32.4M
L02 40.4M
CY5605
CY5604
CY03
CY02
CY01
PF01
CD5601
FO ADJ.
DEV/PB ADJ.
VV0136C

COMPONENT SIDE

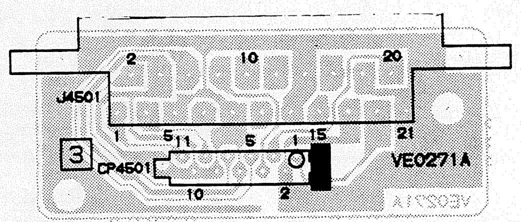

IC01
REF.NO. 5500
REF.NO. 6600
REF.NO. 6000

SOLDER SIDE

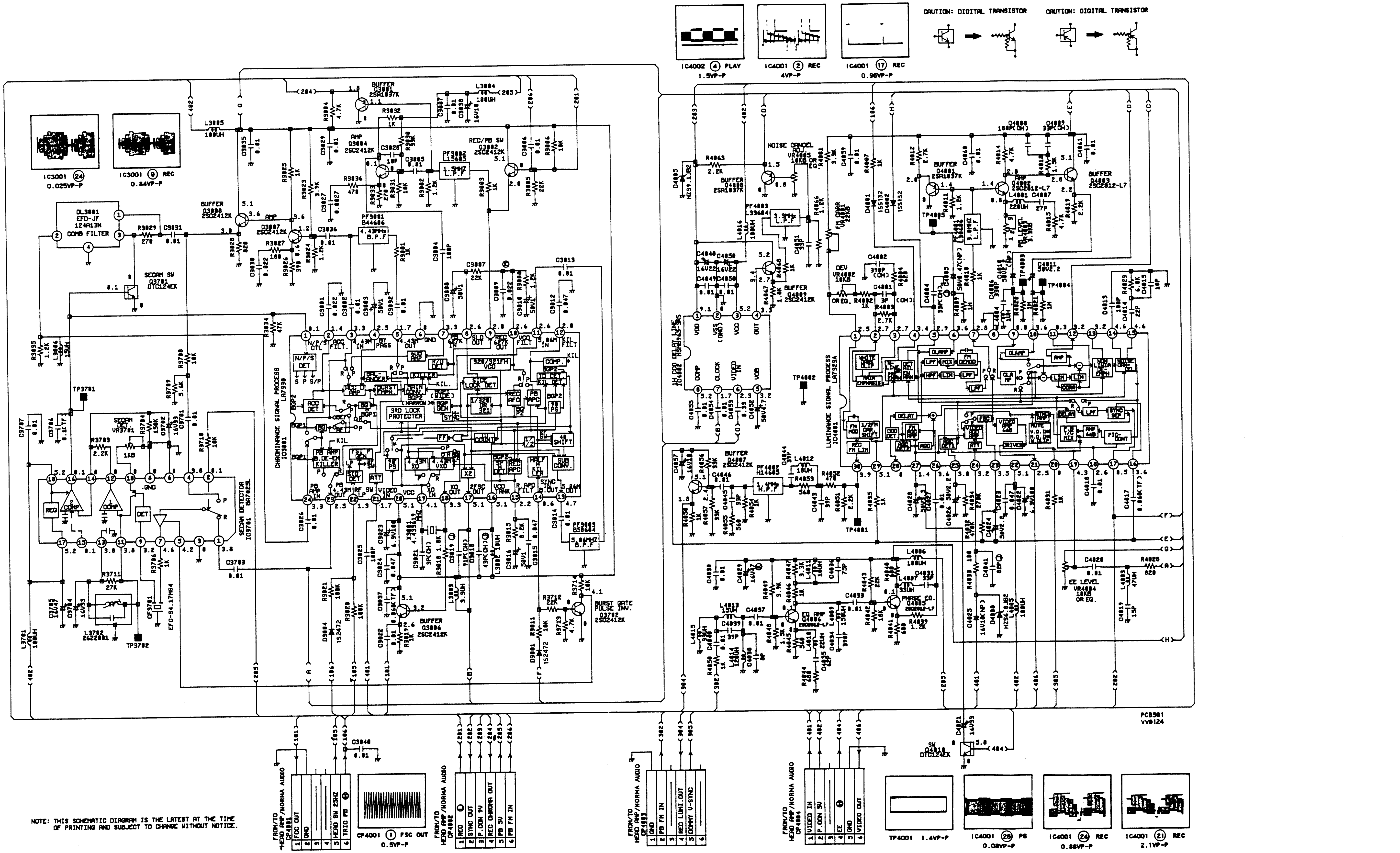
## DECK


Q1102
EOT
C1502
Q1511
SU
D1101
R1501
R1503
R1502
Q1510
TU
R1504
Q1101
BOT
C1501
LDM
CP1103
LDM⊕
B OT
AT5V
AT 6V
PC12V
TAB
MSSW1
MSSW0
S-GND
LDM⊖
TU-P
SENS
LED
EOT
REELBRK
MSSW2
MSSW3
FL
SW102
MSSW
SW101
TAB
SW103
FL
VE0280C

## 21PIN


J4501
2
10
20
3
CP4501
1
5
11
15
21
10
2
VE0271A

# Y.C. SCHEMATIC DIAGRAM

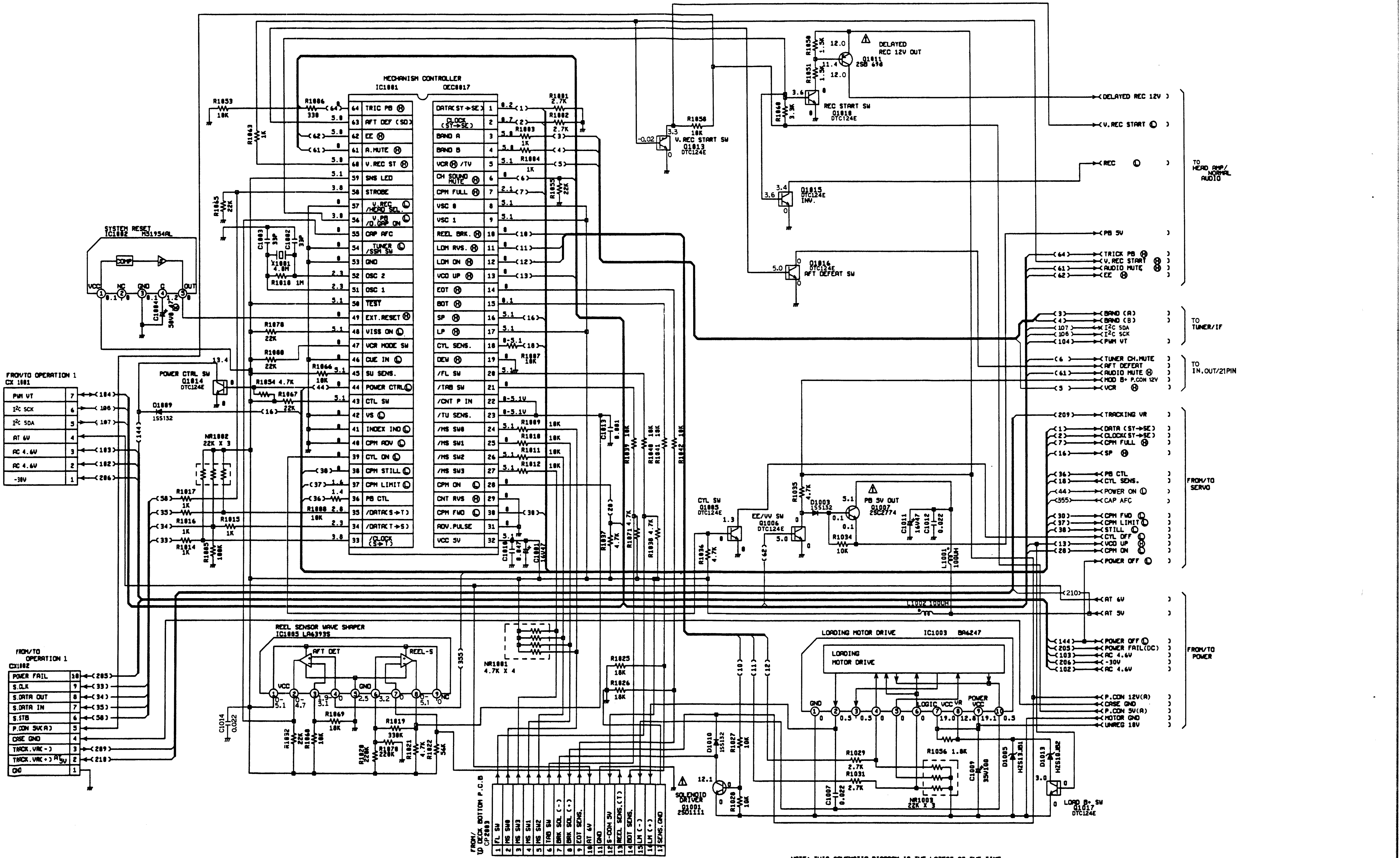

IC4002 ④ PLAY
1.5VP-P
IC4001 ② REC
4VP-P
IC4001 ⑰ REC
0.96VP-P
CAUTION: DIGITAL TRANSISTOR
CAUTION: DIGITAL TRANSISTOR
IC3001 ㉔
0.025VP-P
IC3001 ⑨ REC
0.84VP-P
DL3001
EFD-JF
124R13N
COMB FILTER
BUFFER
Q3801
2SR1037K
BUFFER
Q3808
2SC2412K
AMP
Q3807
2SC2412K
AMP
Q3804
2SC2412K
REC/PB SW
Q3802
2SC2412K
PF3802
L15685
1.5MHZ
L.P.F
PF3801
B44686
4.43MHz
B.P.F
SECAM SW
Q3701
DTC124EK
SECAM DET
VR3701
SECAM DETECTOR
BA7025L
IC3701
CHROMINANCE SIGNAL PROCESS
LA7330
IC3001
BUFFER
Q3806
2SC2412K
BURST GATE
PULSE INV.
Q3702
2SC2412K
PF3803
B58684
4.43MHZ
B.P.F
TP3701
TP3702
L3702
2622001
EFD-S4.17MS4
NOISE CANCEL
ADJ
VR4005
10KB OR
EQ
BUFFER
Q4008
2SR1037K
PF4003
L33684
3.9MHz
L.P.F
BUFFER
Q4009
2SC2412K
DEV
VR4002
10KB
OR EQ.
1H CCD DELAY LINE
MSM6963-3RS
IC4002
LUMINANCE SIGNAL PROCESS
LA7323A
IC4001
TP4002
BUFFER
Q4001
2SR1037K
AMP
Q4002
2SC2612-L7
BUFFER
Q4003
2SC2612-L7
TP4003
TP4004
TP4005
BUFFER
Q4007
2SC2412K
PF4002
H14685
1.4MHz
H.P.F
TP4001
PHASE EQ.
Q4005
EQ
Q4006
EE LEVEL
VR4004
10KB
OR EQ.
SW
Q4010
DTC124EK
PCB301
VV0124
FROM/TO HEAD AMP/NORMA AUDIO CP4001
1 FCC OUT
2 GND
3
4
5 HEAD SW 25HZ
6 TRIC PB ⊕
C3040
0.01
CP4001 ① FSC OUT
0.5VP-P
FROM/TO HEAD AMP/NORMA AUDIO CP4002
1 RED ⊖
2 SYNC OUT
3 P.CON 9V
4 REC CHROMA OUT
5 PB 5V
6 PB FM IN
FROM/TO HEAD AMP/NORMA AUDIO CP4003
1 GND
2 PB FM IN
3
4 REC LUMI.OUT
5 DUMMY V-SYNC
6
FROM/TO HEAD AMP/NORMA AUDIO CP4004
1 VIDEO IN
2 P.CON 5V
3
4 EE
5 GND
6 VIDEO OUT
TP4001 1.4VP-P
IC4001 ㉖ PB
0.08VP-P
IC4001 ㉔ REC
0.88VP-P
IC4001 ㉑ REC
2.1VP-P

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

## Y.C. SCHEMATIC DIAGRAM

1-9963

# SYSTEM CONTROL SCHEMATIC DIAGRAM

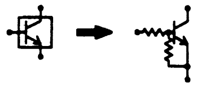

MECHANISM CONTROLLER
IC1001 OEC0017
64 TRIC PB Ⓗ
63 AFT DEF (SD)
62 EE Ⓗ
61 A.MUTE Ⓗ
60 V.REC ST Ⓗ
59 SNS LED
58 STROBE
57 V.REC /HEAD SEL Ⓛ
56 V.PB /D.GAP ON Ⓛ
55 CAP AFC
54 TUNER /SSM SW Ⓛ
53 GND
52 OSC 2
51 OSC 1
50 TEST
49 EXT.RESET Ⓗ
48 VISS ON Ⓛ
47 VCR MODE SW
46 CUE IN Ⓛ
45 SU SENS.
44 POWER CTRL Ⓛ
43 CTL SW
42 VS Ⓛ
41 INDEX IND Ⓛ
40 CPM RDV Ⓛ
39 CTL ON Ⓛ
38 CPM STILL Ⓛ
37 CPM LIMIT Ⓛ
36 PB CTL
35 /DATA(S→T)
34 /DATA(T→S)
33 /CLOCK (S→T)
1 DATA(ST→SE)
2 CLOCK (ST→SE)
3 BAND A
4 BAND B
5 VCR Ⓗ /TV
6 CH SOUND MUTE Ⓗ
7 CPM FULL Ⓗ
8 VSC 0
9 VSC 1
10 REEL BRK. Ⓗ
11 LDM RVS. Ⓗ
12 LDM ON Ⓗ
13 VCO UP Ⓗ
14 EOT Ⓗ
15 BOT Ⓗ
16 SP Ⓗ
17 LP Ⓗ
18 CTL SENS.
19 DEV Ⓗ
20 /FL SW
21 /TAB SW
22 /CNT P IN
23 /TU SENS.
24 /MS SW0
25 /MS SW1
26 /MS SW2
27 /MS SW3
28 CPM ON Ⓛ
29 CNT RVS Ⓗ
30 CPM FWD Ⓛ
31 ADV.PULSE
32 VCC 5V
SYSTEM RESET IC1002 M51954AL
COMP
VCC NC GND C OUT
C1004 4.7 50V
X1001 4.0M
R1018 1M
C1003 33P
C1002 33P
POWER CTRL SW Q1014 DTC124E
D1009 1SS132
NR1002 22K X 3
FROM/TO OPERATION 1 CX 1001
PWM VT
I²C SCK
I²C SDA
AT 6V
AC 4.6V
AC 4.6V
-30V
FROM/TO OPERATION 1 CX1002
POWER FAIL
S.CLK
S.DATA OUT
S.DATA IN
S.STB
P.CON 5V(A)
CASE GND
TRACK.VR(-)
TRACK.VR(+)
GND
REEL SENSOR WAVE SHAPER IC1005 LA6393S
AFT DET
REEL-S
VCC
GND
NC
C1014 0.022
R1019 330K
NR1001 4.7K X 4
FROM/ TO DECK BOTTOM P.C.B CP2003
FL SW
MS SW0
MS SW3
MS SW1
MS SW2
TAB SW
BRK SOL (-)
BRK SOL (+)
EOT SENS.
AT 6V
GND
S-COM 5V
REEL SENS.(T)
BOT SENS.
LM (-)
LM (+)
SENS.GND
SOLENOID DRIVER Q1001 2SD1111
D1010 1SS132
LOADING MOTOR DRIVE IC1003 BA6247
LOADING MOTOR DRIVE
GND
LOGIC VCC
VR
POWER VCC
R1056 1.8K
NR1003 22K X 3
D1005 HZS13JB1
D1013 HZS10JB2
LOAD B+ SW Q1017 DTC124E
L1002 100UH
L1001 100UH
CTL SW Q1005 DTC124E
EE/VV SW Q1006 DTC124E
D1003 1SS132
PB 5V OUT Q1007 2SC2774
DELAYED REC 12V OUT Q1011 2SB 698
REC START SW Q1010 DTC124E
V.REC START SW Q1013 DTC124E
Q1015 DTC124E INV.
Q1016 DTC124E AFT DEFEAT SW
DELAYED REC 12V
V.REC START Ⓛ
REC Ⓛ
TO HEAD AMP/ NORMAL AUDIO
PB 5V
TRICK PB Ⓗ
V.REC START Ⓗ
AUDIO MUTE Ⓗ
EE Ⓗ
BAND (A)
BAND (B)
I²C SDA
I²C SCK
PWM VT
TO TUNER/IF
TUNER CH.MUTE
AFT DEFEAT
AUDIO MUTE Ⓗ
MOD B+ P.CON 12V
VCR Ⓗ
TO IN,OUT/21PIN
TRACKING VR
DATA (ST→SE)
CLOCK(ST→SE)
CPM FULL Ⓗ
SP Ⓗ
PB CTL
CTL SENS.
POWER ON Ⓛ
CAP AFC
CPM FWD Ⓛ
CPM LIMIT Ⓛ
STILL Ⓛ
CTL OFF Ⓗ
VCO UP Ⓗ
CPM ON Ⓗ
POWER OFF Ⓛ
FROM/TO SERVO
AT 6V
AT 5V
POWER OFF Ⓛ
POWER FAIL(DC)
AC 4.6V
-30V
AC 4.6V
P.CON 12V(A)
CASE GND
P.CON 5V(A)
MOTOR GND
UNREG 18V
FROM/TO POWER

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY,USE ONES DESCRIBED ON PARTS LIST ONLY.

ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AU POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

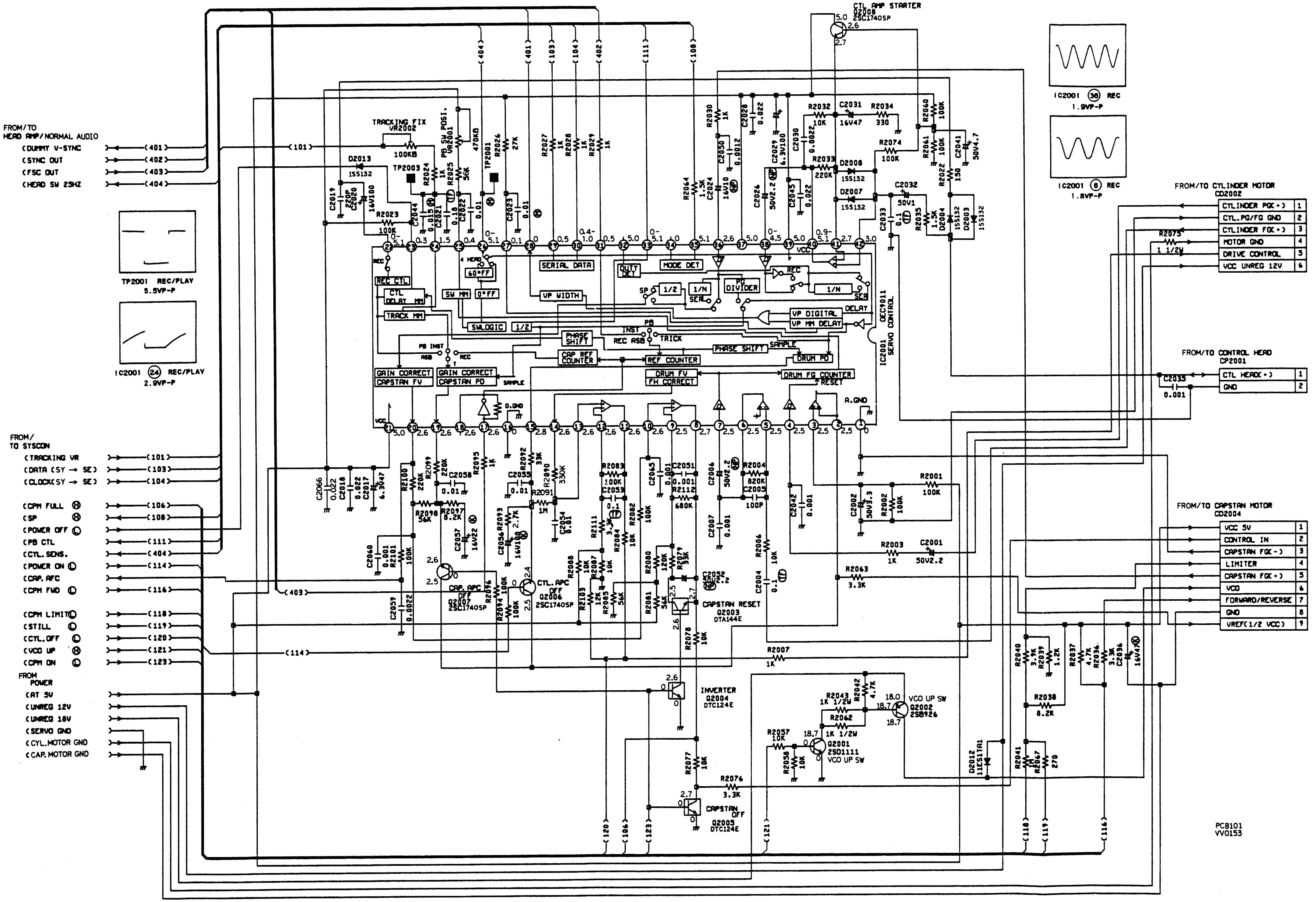
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

CAUTION: DIGITAL TRANSISTOR



SYSTEM CONTROL SCHEMATIC DIAGRAM

# SERVO SCHEMATIC DIAGRAM

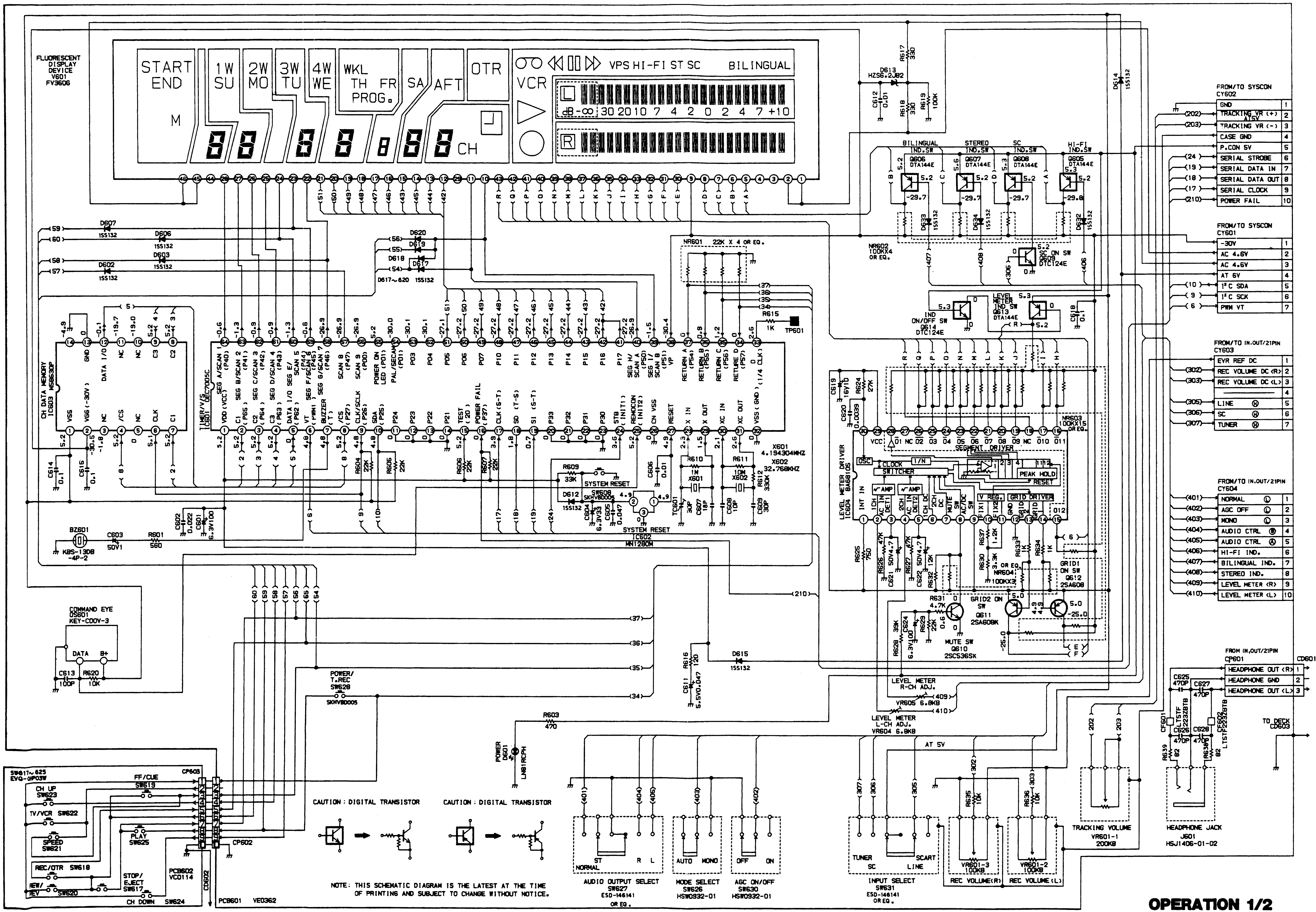

FROM/TO
HEAD AMP/NORMAL AUDIO
(DUMMY V-SYNC
(SYNC OUT
(FSC OUT
(HEAD SW 25HZ
(401)
(402)
(403)
(404)
(101)
TP2001 REC/PLAY
5.5VP-P
IC2001 (24) REC/PLAY
2.9VP-P
FROM/
TO SYSCON
(TRACKING VR
(DATA (SY → SE)
(CLOCK(SY → SE)
(CPM FULL (H)
(SP (H)
(POWER OFF (L)
(PB CTL
(CYL. SENS.
(POWER ON (L)
(CAP. AFC
(CPM FWD (L)
(CPM LIMIT(L)
(STILL (L)
(CTL.OFF (L)
(VCO UP (H)
(CPM ON (L)
FROM
POWER
(AT 5V
(UNREG 12V
(UNREG 18V
(SERVO GND
(CYL.MOTOR GND
(CAP. MOTOR GND
(103)
(104)
(106)
(108)
(111)
(114)
(116)
(118)
(119)
(120)
(121)
(123)
TRACKING FIX
VR2002
100KB
D2013
1SS132
TP2003
PB SW POSI.
VR2001
470KB
CTL AMP STARTER
Q2008
2SC1740SP
SERIAL DATA
DUTY DET
MODE DET
REC CTL
CTL DELAY MM
TRACK MM
SW MM
0°FF
60°FF
4 HEAD
SWLOGIC
1/2
VP WIDTH
1/2
1/N
SEN
PG DIVIDER
REC
1/N
SEN
VP DIGITAL
DELAY
VP MM DELAY
PHASE SHIFT
INST
PB
TRICK
REC ASB
PB INST
ASB
REC
CAP REF COUNTER
REF COUNTER
PHASE SHIFT
SAMPLE
DRUM PD
GAIN CORRECT
CAPSTAN FV
GAIN CORRECT
CAPSTAN PD
SAMPLE
DRUM FV
FH CORRECT
DRUM FG COUNTER
RESET
A.GND
D.GND
VCC
IC2001 SERVO CONTROL
OEC9011
CAP. APC
OFF
Q2007
2SC1740SP
CTL. APC
OFF
Q2006
2SC1740SP
CAPSTAN RESET
Q2003
DTA144E
INVERTER
Q2004
DTC124E
VCO UP SW
Q2002
2SB926
Q2001
2SD1111
VCO UP SW
CAPSTAN
OFF
Q2005
DTC124E
D2012
11ES1TA1
D2008
1SS132
D2007
1SS132
D2004
1SS132
D2003
1SS132
IC2001 (38) REC
1.9VP-P
IC2001 (6) REC
1.8VP-P
FROM/TO CYLINDER MOTOR
CD2002
CYLINDER PG(+) 1
CYL.PG/FG GND 2
CYLINDER FG(+) 3
MOTOR GND 4
DRIVE CONTROL 5
VCC UNREG 12V 6
R2075
1 1/2W
FROM/TO CONTROL HEAD
CP2001
CTL HEAD(+) 1
GND 2
C2035
0.001
FROM/TO CAPSTAN MOTOR
CD2004
VCC 5V 1
CONTROL IN 2
CAPSTAN FG(-) 3
LIMITER 4
CAPSTAN FG(+) 5
VCO 6
FORWARD/REVERSE 7
GND 8
VREF(1/2 VCC) 9
PCB101
VV0153

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

## SERVO SCHEMATIC DIAGRAM

1-8869

# OPERATION 1/2 SCHEMATIC DIAGRAM


FLUORESCENT DISPLAY DEVICE V601 FV3606
START END
M
1W SU
2W MO
3W TU
4W WE
WKL TH FR PROG.
SA AFT
OTR
CH
VCR
VPS HI-FI ST SC BILINGUAL
dB-∞ 30 20 10 7 4 2 0 2 4 7 +10
L
R
D607 1SS132
D606 1SS132
D603 1SS132
D602 1SS132
D620
D619
D618
D617
D617~620 1SS132
NR601 22K X 4 OR EQ.
R615 1K
TP601
CH DATA MEMORY IC603 MSM6630P
VSS
VGG (-30V)
NC
/CS
CLK
C1
C2
C3
DATA I/O
GND
TIMER/VS IC601 UPD7005C
VDD (VCC)
SEG A/SCAN 1 (P40)
SEG B/SCAN 2 (P41)
SEG C/SCAN 3 (P42)
SEG D/SCAN 4 (P43)
SEG E/SCAN 5 (P44)
SEG F/SCAN 6 (P45)
SEG G/SCAN 7 (P46)
SCAN 8 (P47)
SCAN 9 (P00)
POWER ON LED (P01)
PAL/SECAM (P01)
P03
P04
P05
P06
P07
P10
P11
P12
P13
P14
P15
P16
P17
SEG H/SCAN A (P50)
SEG I/SCAN B (P51)
VP
RETURN A (P54)
RETURN B (P55)
RETURN C (P56)
RETURN D (P57)
O (1/4 CLK)
VSS (GND)
XC OUT
XC IN
X OUT
X IN
RESET
CN VSS
REMOCON (INT2)
STB (INT1)
P30
P31
P32
P33
SI (S-T)
SO (T-S)
CLK (S-T)
POWER FAIL (P37)
TEST (20)
P21
P22
P23
P24
SDA (P25)
CLK/SCLK (P26)
/CS (P27)
BUZZER (T)
VT (PWM)
DATA I/O SEG (P62)
X601 4.194304MHZ
X602 32.768KHZ
R610 1M
R611 10M
R612 330K
C607 18P
C608 10P
C609 30P
C606 0.01
R609 33K
SYSTEM RESET
SW608 SKHVBD005
D612 1SS132
C604 6.3V33
C605 0.047
SYSTEM RESET IC602 MN1280M
R604 22K
R605 22K
R606 22K
R607 22K
C614 0.1
C616 0.1
C602 0.022
C601 6.3V100
BZ601 KBS-13DB-4P-2
C603 50V1
R601 560
COMMAND EYE 0S601 KEY-C00V-3
DATA B+
C613 100P
R620 10K
POWER/T.REC SW628 SKHVBD005
R616 120
C611 5.5V0.047
D615 1SS132
R603 470
POWER D601 LN81RCPH
SW617~625 EVQ-0HP03W
CH UP SW623
TV/VCR SW622
SPEED SW621
REC/OTR SW618
REW/REV SW620
FF/CUE SW619
PLAY SW625
STOP/EJECT SW617
CH DOWN SW624
CP603
CP602
PCB602 VC0114
CD602
PCB601 VE0362
TO PLATE EARTH(W)
CAUTION : DIGITAL TRANSISTOR
CAUTION : DIGITAL TRANSISTOR
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.
D613 HZS6.2JB2
R617 330
C612 0.01
R618 330
R619 100K
D614 1SS132
BILINGUAL IND.SW Q606 DTA144E
STEREO IND.SW Q607 DTA144E
SC IND.SW Q608 DTA144E
HI-FI IND.SW Q605 DTA144E
D633 1SS132
D634 1SS132
D632 1SS132
NR602 100KX4 OR EQ.
SC ON SW Q609 DTC124E
IND ON/OFF SW Q614 DTC124E
LEVEL METER IND SW Q613 DTA144E
C618 0.1
C619 16V10
R624 27K
C620 0.0039
LEVEL METER DRIVER IC604 BA6810S
OSC
CLOCK SWITCHER
1/N
SEGMENT DRIVER
PEAK HOLD RESET
AMP
V REG.
GRID DRIVER
NR603 100KX15 OR EQ.
R625 750
R626 47K
C621 50V4.7
R627 47K
C622 50V4.7
R632 12K
R637 1.2K
R630 3.3K
R633 1K
R634 1K
NR604 100KX3 OR EQ.
GRID1 ON SW Q612 2SA608
GRID2 ON SW Q611 2SA608K
R631 4.7K
R629 22K
C624 6.3V100
R628 39K
MUTE SW Q610 2SC536SK
LEVEL METER R-CH ADJ. VR605 6.8KB
LEVEL METER L-CH ADJ. VR604 6.8KB
AT 5V
FROM/TO SYSCON CY602
GND 1
TRACKING VR (+) AT5V 2
TRACKING VR (-) 3
CASE GND 4
P.CON 5V 5
SERIAL STROBE 6
SERIAL DATA IN 7
SERIAL DATA OUT 8
SERIAL CLOCK 9
POWER FAIL 10
FROM/TO SYSCON CY601
-30V 1
AC 4.6V 2
AC 4.6V 3
AT 6V 4
I²C SDA 5
I²C SCK 6
PWM VT 7
FROM/TO IN.OUT/21PIN CY603
EVR REF DC 1
REC VOLUME DC <R> 2
REC VOLUME DC <L> 3
4
LINE Ⓗ 5
SC Ⓗ 6
TUNER Ⓗ 7
FROM/TO IN.OUT/21PIN CY604
NORMAL Ⓛ 1
AGC OFF Ⓛ 2
MONO Ⓛ 3
AUDIO CTRL Ⓑ 4
AUDIO CTRL Ⓐ 5
HI-FI IND. 6
BILINGUAL IND. 7
STEREO IND. 8
LEVEL METER <R> 9
LEVEL METER <L> 10
FROM IN,OUT/21PIN CP601
CD601
HEADPHONE OUT <R> 1
HEADPHONE GND 2
HEADPHONE OUT <L> 3
C625 470P
C627 470P
C626 470P
C628 470P
CF601 LTSTF 2232BTB
CF602 LTSTF2232BTB
R639 82
R638 82
TO DECK CD603
HEADPHONE JACK J601 HSJ1406-01-02
TRACKING VOLUME VR601-1 200KB
R635 10K
R636 10K
VR601-3 100KB
VR601-2 100KB
REC VOLUME(R)
REC VOLUME (L)
TUNER SC
SCART LINE
INPUT SELECT SW631 ESD-146141 OR EQ.
ST NORMAL
R L
AUDIO OUTPUT SELECT SW627 ESD-146141 OR EQ.
AUTO MONO
MODE SELECT SW626 HSW0932-01
OFF ON
AGC ON/OFF SW630 HSW0932-01

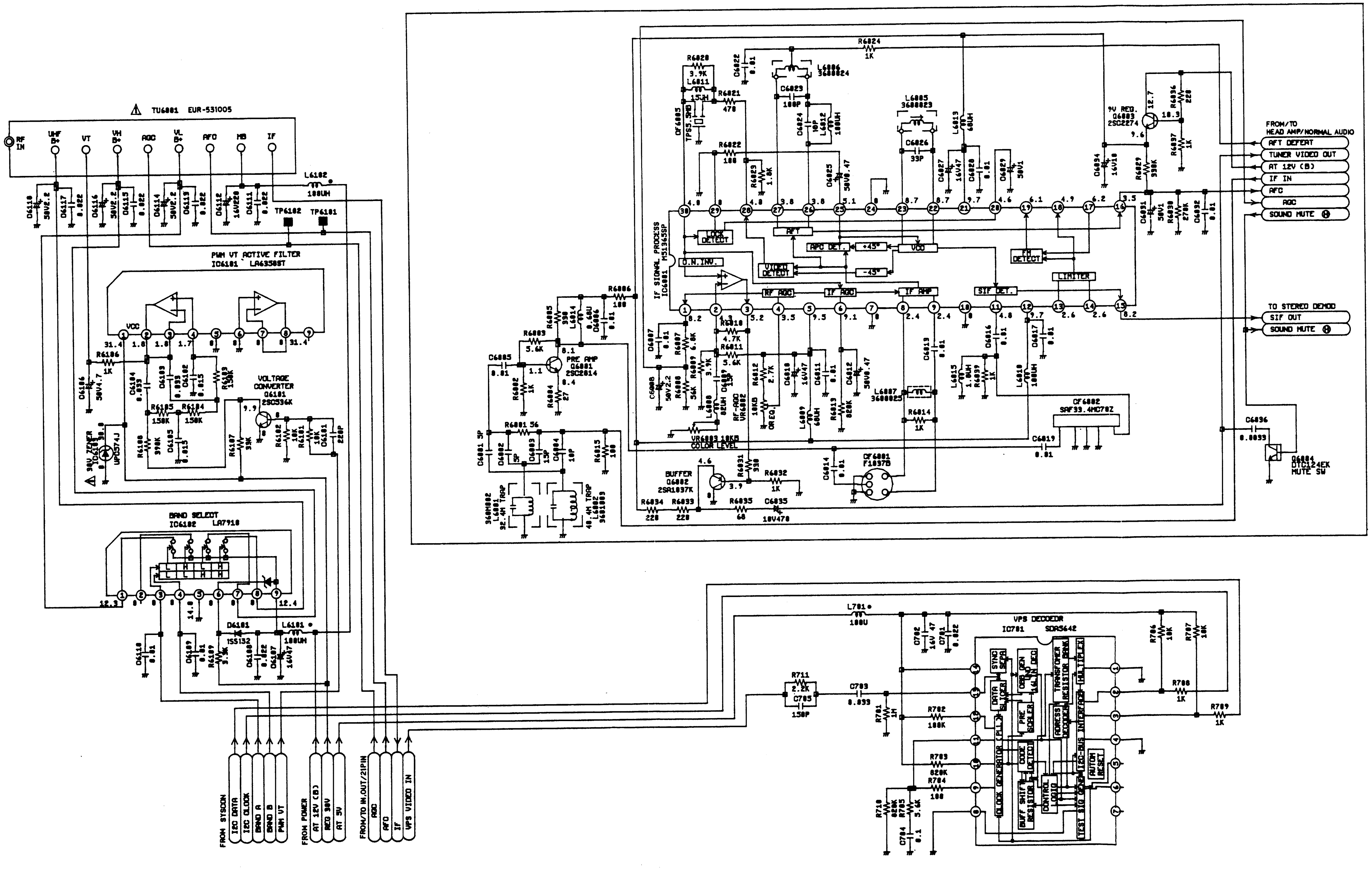
IC604

| PIN | VOLTAGE |
|---|---|
| ① | 0.8 |
| ② | 1.4 |
| ③ | 0.6 |
| ④ | 1.4 |
| ⑤ | 0.8 |
| ⑥ | 0 |
| ⑦ | 0 |
| ⑧ | 0 |
| ⑨ | 5.0 |
| ⑩ | 1.8 |
| ⑪ | 1.3 |
| ⑫ | 0 |
| ⑬ | 4.6 |
| ⑭ | 4.6 |
| ⑮ | -29.6 |
| ⑯ | -29.7 |
| ⑰ | -29.7 |
| ⑱ | 5.2 |
| ⑲ | -29.7 |
| ⑳ | -29.7 |
| ㉑ | -29.7 |
| ㉒ | -29.7 |
| ㉓ | -29.7 |
| ㉔ | -29.7 |
| ㉕ | -29.7 |
| ㉖ | -29.7 |
| ㉗ | 0 |
| ㉘ | -19.5 |
| ㉙ | 5.0 |
| ㉚ | 3.1 |

## OPERATION 1/2 SCHEMATIC DIAGRAM

1-9966

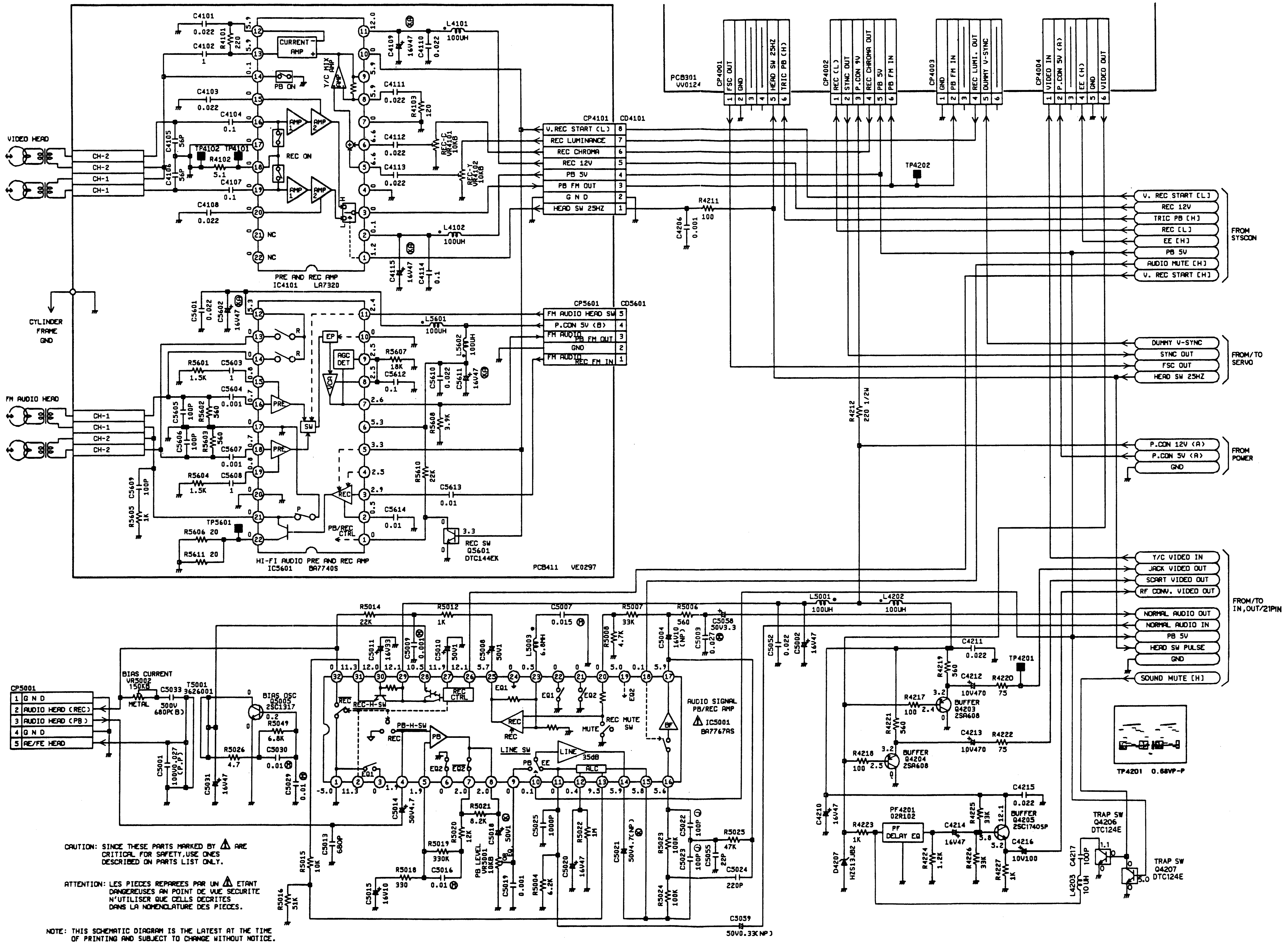
# TUNER/IF/VPS SCHEMATIC DIAGRAM


TU6001 EUR-531005
RF IN
UHF B+
VT
VH B+
AGC
VL B+
AFC
MB
IF
L6102 100UH
TP6102
TP6101
PWM VT ACTIVE FILTER
IC6101 LA6358ST
VCC
VOLTAGE CONVERTER
Q6101 2SC536K
30V ZENER D6109
BAND SELECT
IC6102 LA7910
D6101 1SS132
L6101 100UH
FROM SYSCON
I2C DATA
I2C CLOCK
BAND A
BAND B
PWM VT
FROM POWER
AT 12V (B)
REG 30V
AT 5V
FROM/TO H.OUT/21PIN
AGC
AFC
IF
VPS VIDEO IN
IF SIGNAL PROCESS IC6001 M51365SP
PRE AMP Q6001 2SC2814
LOCK DETECT
AFT
AFC DET.
+45°
VCO
-45°
Q.N.INV.
VIDEO DETECT
RF AGC
IF AGC
IF AMP
SIF DET.
FM DETECT
LIMITER
9V REG. Q6003 2SC2274
CF6002 SAF39.4MC78Z
CF6001 F1037B
BUFFER Q6002 2SA1037K
VR6003 10KB COLOR LEVEL
VR6002 10KB RF AGC
32.4M TRAP
40.4M TRAP
L6006 3600024
L6005 3600023
L6007 3600025
FROM/TO HEAD AMP/NORMAL AUDIO
AFT DEFEAT
TUNER VIDEO OUT
AT 12V (B)
IF IN
AFC
AGC
SOUND MUTE Ⓗ
TO STEREO DEMOD
SIF OUT
SOUND MUTE Ⓗ
Q6004 DTC124EK MUTE SW
VPS DECODER
IC701 SDA5642
L701 100U
SYNC SEPAR.
DATA SLICER
CLOCK GENERATOR (PLL)
BUFF SHIFT RESISTOR
OSC GEN (4.43 OSC)
PRE SCALER
CODE DETECT
CONTROL LOGIC
TRANSFORMER RESISTOR BANK
ADRESS DECODER
I2C BUS INTERFACE
MULTIPLEX
POWER RESET
TEST BIG DATA

# TUNER/IF/VPS SCHEMATIC DIAGRAM

1-9967

# HEAD AMP/NORMAL AUDIO SCHEMATIC DIAGRAM


VIDEO HEAD
CH-2
CH-2
CH-1
CH-1
CYLINDER FRAME GND
FM AUDIO HEAD
CURRENT AMP
PB ON
REC ON
Y/C MIX AMP
PRE AND REC AMP
IC4101 LA7320
HI-FI AUDIO PRE AND REC AMP
IC5601 BA7740S
REC SW Q5601 DTC144EK
PCB411 VE0297
CP4101 CD4101
V.REC START (L)
REC LUMINANCE
REC CHROMA
REC 12V
PB 5V
PB FM OUT
G N D
HEAD SW 25HZ
CP5601 CD5601
FM AUDIO HEAD SW
P.CON 5V (B)
FM AUDIO PB FM OUT
GND
FM AUDIO REC FM IN
PCB301 VV0124
CP4001
FSC OUT
GND
HEAD SW 25HZ
TRIC PB (H)
CP4002
REC (L)
SYNC OUT
P.CON 9V
REC CHROMA OUT
PB 5V
PB FM IN
CP4003
GND
PB FM IN
REC LUMI. OUT
DUMMY V-SYNC
CP4004
VIDEO IN
P.CON 5V (A)
EE (H)
GND
VIDEO OUT
TP4202
V. REC START (L)
REC 12V
TRIC PB (H)
REC (L)
EE (H)
PB 5V
AUDIO MUTE (H)
V. REC START (H)
FROM SYSCON
DUMMY V-SYNC
SYNC OUT
FSC OUT
HEAD SW 25HZ
FROM/TO SERVO
P.CON 12V (A)
P.CON 5V (A)
GND
FROM POWER
Y/C VIDEO IN
JACK VIDEO OUT
SCART VIDEO OUT
RF CONV. VIDEO OUT
NORMAL AUDIO OUT
NORMAL AUDIO IN
PB 5V
HEAD SW PULSE
GND
SOUND MUTE (H)
FROM/TO IN,OUT/21PIN
CP5001
G N D
AUDIO HEAD (REC)
AUDIO HEAD (PB)
G N D
AE/FE HEAD
BIAS CURRENT VR5002 150KB METAL
T5001 3626001
BIAS OSC Q5005 2SC1317
AUDIO SIGNAL PB/REC AMP
IC5001 BA7767AS
REC CTRL
REC-H-SW
PB-H-SW
LINE SW
LINE 35dB
ALC
REC MUTE SW
PB LEVEL VR5001 10KB
BUFFER Q4203 2SA608
BUFFER Q4204 2SA608
BUFFER Q4205 2SC1740SP
PF4201 02R102 PF DELAY EQ
TRAP SW Q4206 DTC124E
TRAP SW Q4207 DTC124E
TP4201
TP4201 0.68VP-P

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED ON PARTS LIST ONLY.

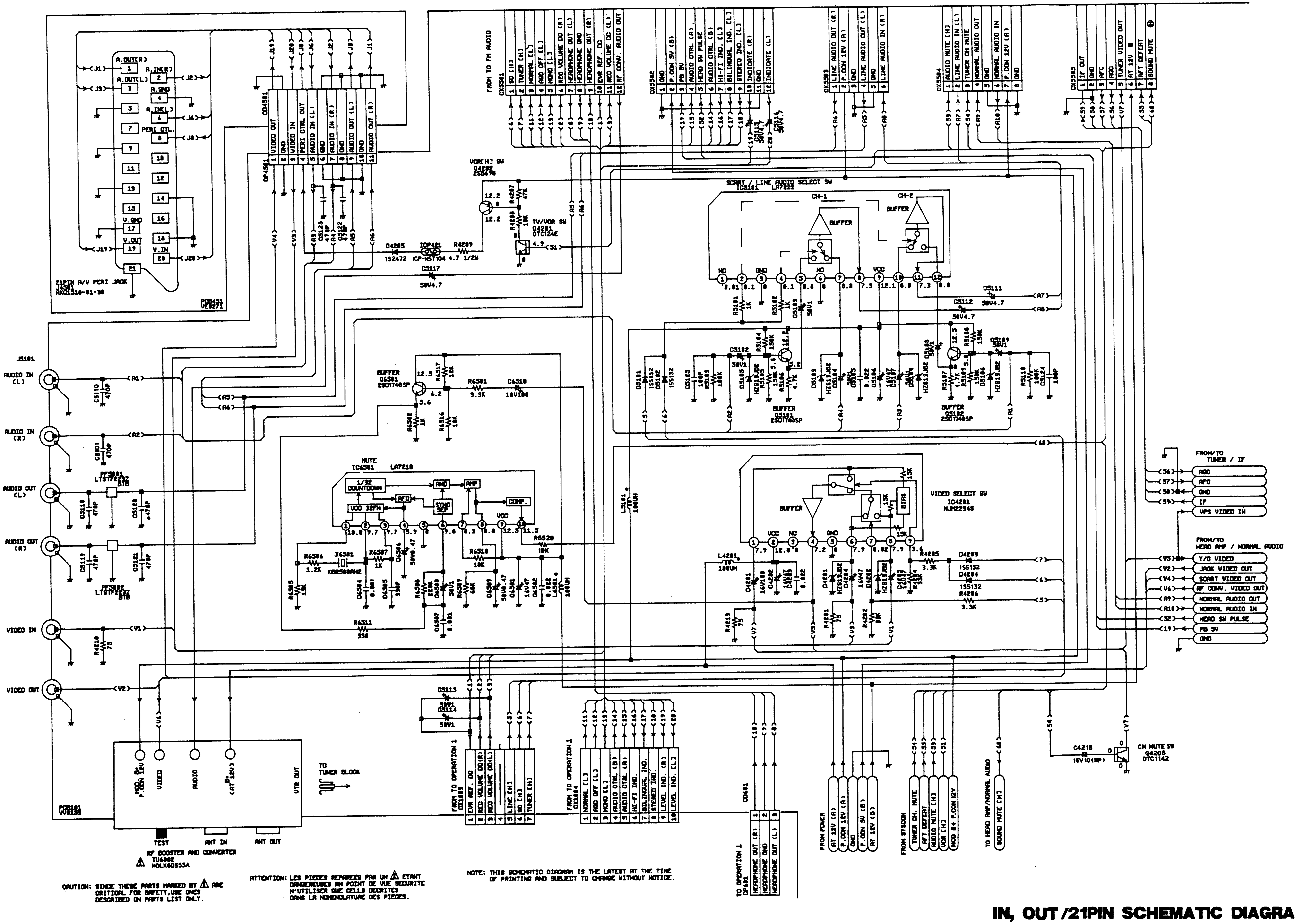
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

# HEAD AMP/NORMAL AUDIO SCHEMATIC DIAGRAM

1-8108

# IN, OUT/21PIN SCHEMATIC DIAGRAM


21PIN A/V PERI JACK
J4501
AXD1318-01-30
A.OUT(R)
A.IN(R)
A.OUT(L)
A.GND
A.IN(L)
PERI CTL.
V.GND
V.OUT
V.IN
OD4501
OP4501
VIDEO OUT
GND
VIDEO IN
PERI CTRL OUT
AUDIO IN (L)
GND
AUDIO IN (R)
GND
AUDIO OUT (L)
GND
AUDIO OUT (R)
FROM TO FM AUDIO
CX5501
SO (H)
TUNER (H)
NORMAL (L)
AGC OFF (L)
MONO (L)
REC VOLUME DC (R)
HEADPHONE OUT (L)
HEADPHONE GND
HEADPHONE OUT (R)
EVR REF. DC
REC VOLUME DC (L)
RF CONV. AUDIO OUT
CX5502
GND
P.CON 5V (B)
PB 5V
AUDIO CTRL (A)
HEAD SW PULSE
AUDIO CTRL (B)
HI-FI IND. (L)
BILINGUAL IND. (L)
STEREO IND. (L)
INDICATE (R)
GND
INDICATE (L)
CX5503
LINE AUDIO OUT (R)
P.CON 12V (A)
GND
LINE AUDIO OUT (L)
GND
LINE AUDIO IN (R)
CX5504
AUDIO MUTE (H)
LINE AUDIO IN (L)
TUNER CH MUTE
NORMAL AUDIO OUT
GND
NORMAL AUDIO IN
P.CON 12V (A)
GND
CX5505
IF OUT
GND
AFC
AGC
TUNER VIDEO OUT
AT 12V B
AFT DEFEAT
SOUND MUTE
VCR(H) SW
Q4202
2SC458
TV/VCR SW
Q4201
DTC124E
D4203
1S2472
ICP4201
ICP-N5T104
R4209
4.7 1/2W
C5117
50V4.7
SCART / LINE AUDIO SELECT SW
IC5101 LA7222
CH-1
CH-2
BUFFER
NC
GND
VCC
C5111
50V4.7
C5112
50V4.7
BUFFER
Q5101
2SC1740SP
BUFFER
Q5102
2SC1740SP
J5101
AUDIO IN (L)
AUDIO IN (R)
AUDIO OUT (L)
AUDIO OUT (R)
VIDEO IN
VIDEO OUT
PF5001
LT5TF2
PF5002
LT5TF2
BUFFER
Q6501
2SC1740SP
MUTE
IC6501 LA7218
1/32 COUNTDOWN
AND
AMP
AFC
SYNC SEP
COMP.
VCO 32FH
X6501
KBR500AH2
L5101
100UH
VIDEO SELECT SW
IC4201
NJM2234S
BUFFER
BIAS
L4201
100UH
D4203
1SS132
D4204
1SS132
R4206
3.3K
FROM/TO
TUNER / IF
AGC
AFC
GND
IF
VPS VIDEO IN
FROM/TO
HEAD AMP / NORMAL AUDIO
Y/C VIDEO
JACK VIDEO OUT
SCART VIDEO OUT
RF CONV. VIDEO OUT
NORMAL AUDIO OUT
NORMAL AUDIO IN
HEAD SW PULSE
PB 5V
GND
C5113
50V1
C5114
50V1
FROM TO OPERATION 1
CX1003
EVR REF. DC
REC VOLUME DC(R)
REC VOLUME DC(L)
LINE (H)
SO (H)
TUNER (H)
FROM TO OPERATION 1
CX1004
NORMAL (L)
AGC OFF (L)
MONO (L)
AUDIO CTRL (B)
AUDIO CTRL (A)
HI-FI IND.
BILINGUAL IND.
STEREO IND.
LEVEL IND. (R)
LEVEL IND. (L)
OD601
TO OPERATION 1
OP601
HEADPHONE OUT (R)
HEADPHONE GND
HEADPHONE OUT (L)
FROM POWER
AT 12V (A)
P.CON 12V (A)
GND
P.CON 5V (B)
AT 12V (B)
FROM SYSCON
TUNER CH. MUTE
AFT DEFEAT
AUDIO MUTE (H)
VCR (H)
MOD B+ P.CON 12V
TO HEAD AMP/NORMAL AUDIO
SOUND MUTE (H)
C4218
16V10(NP)
CH MUTE SW
Q4208
DTC1142
PCB101
VV0153
MOD. B+ P.CON 12V
VIDEO
AUDIO
B+ (AT 12V)
VTR OUT
TO TUNER BLOCK
TEST
ANT IN
ANT OUT
RF BOOSTER AND CONVERTER
⚠ TU6002
MOLK60553A

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED ON PARTS LIST ONLY.

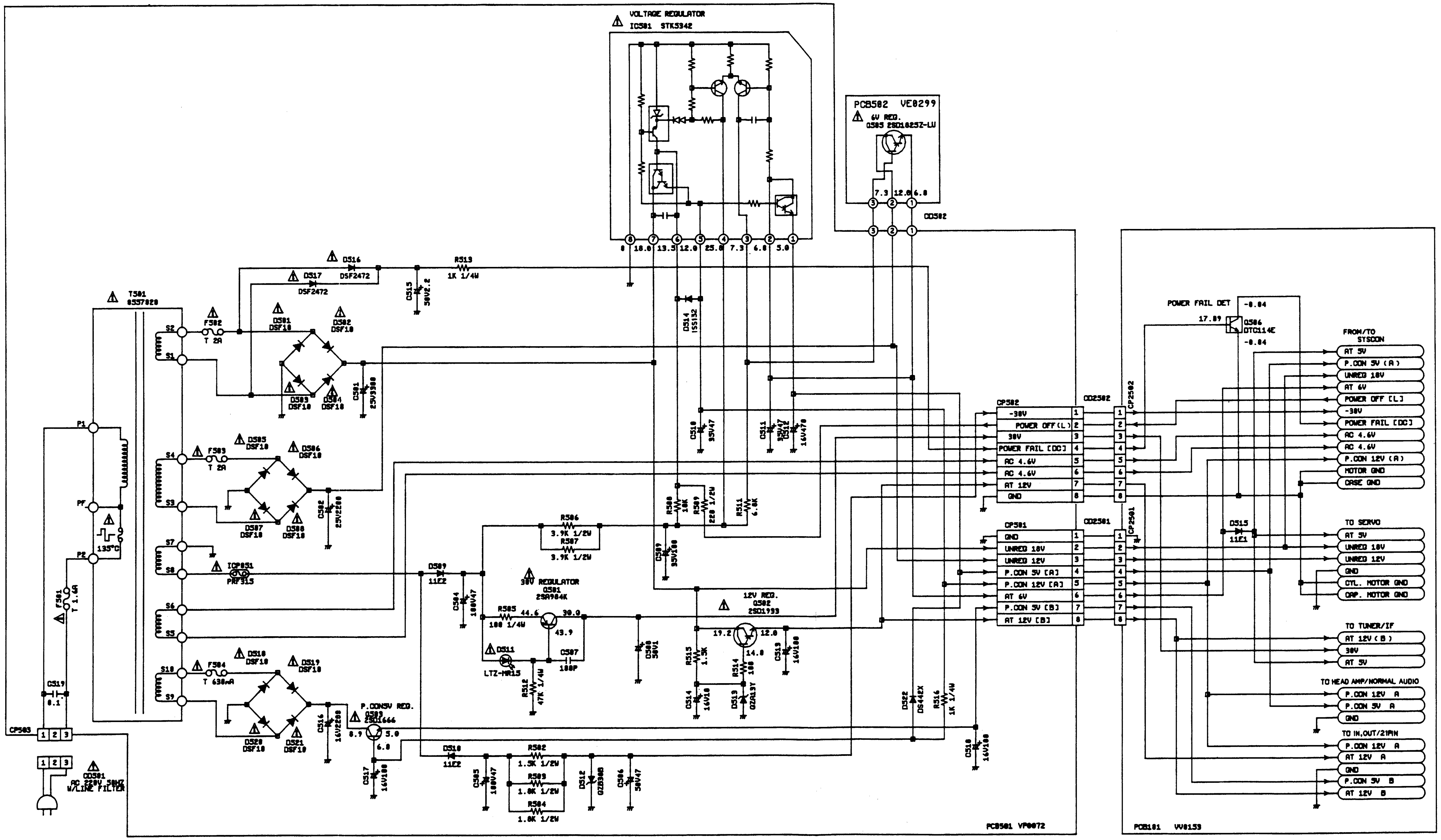
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

## IN, OUT/21PIN SCHEMATIC DIAGRAM

1-9968

# POWER SUPPLY SCHEMATIC DIAGRAM


T501
0557020
P1
PF
P2
135°C
F501
T 1.6A
C519
0.1
CP503
1 2 3
CD501
AC 220V 50HZ
W/LINE FILTER
S2
S1
S4
S3
S7
S8
S6
S5
S10
S9
F502
T 2A
F503
T 2A
F504
T 630mA
ICP851
PRF315
D501
DSF10
D502
DSF10
D503
DSF10
D504
DSF10
D505
DSF10
D506
DSF10
D507
DSF10
D508
DSF10
D520
DSF10
D521
DSF10
D518
DSF10
D519
DSF10
D516
DSF2472
D517
DSF2472
C515
50V2.2
R513
1K 1/4W
C501
25V3300
C502
25V2200
C516
16V2200
P.CONSV REG.
Q503
2SD1666
8.9
5.0
6.8
C517
16V100
D509
11E2
C504
100V47
R505
100 1/4W
44.6
30.0
43.9
30V REGULATOR
Q501
2SA984K
R506
3.9K 1/2W
R507
3.9K 1/2W
D511
LTZ-MR15
R512
47K 1/4W
C507
100P
D510
11E2
C505
100V47
R502
1.5K 1/2W
R503
1.8K 1/2W
R504
1.8K 1/2W
D512
GZB30B
C506
50V47
C508
50V1
C509
95V100
R508
10K
R509
220 1/2W
R511
6.8K
12V REG.
Q502
2SD1933
19.2
12.0
14.0
R515
1.5K
R514
100
C513
16V100
C514
16V10
D513
GZA13Y
D522
DS442X
R516
1K 1/4W
C518
16V100
VOLTAGE REGULATOR
IC501 STK5342
8 18.0 13.5 12.0 25.0 7.3 6.8 5.0
D514
1SS132
C510
95V47
C511
95V47
C512
16V470
PCB502 VE0299
6V REG.
Q505 2SD1825Z-LU
7.3 12.0 6.8
CD502
CP502
-30V 1
POWER OFF(L) 2
30V 3
POWER FAIL [DC] 4
AC 4.6V 5
AC 4.6V 6
AT 12V 7
GND 8
CD2502
CP2502
CP501
GND 1
UNREG 18V 2
UNREG 12V 3
P.CON 5V [A] 4
P.CON 12V [A] 5
AT 6V 6
P.CON 5V [B] 7
AT 12V [B] 8
CD2501
CP2501
PCB501 VP0072
POWER FAIL DET
-0.04
17.89
Q506
DTC114E
-0.04
D515
11E1
FROM/TO
SYSCON
AT 5V
P.CON 5V (A)
UNREG 18V
AT 6V
POWER OFF [L]
-30V
POWER FAIL [DC]
AC 4.6V
AC 4.6V
P.CON 12V (A)
MOTOR GND
CASE GND
TO SERVO
AT 5V
UNREG 18V
UNREG 12V
GND
CYL. MOTOR GND
CAP. MOTOR GND
TO TUNER/IF
AT 12V (B)
30V
AT 5V
TO HEAD AMP/NORMAL AUDIO
P.CON 12V A
P.CON 5V A
GND
TO IN,OUT/21PIN
P.CON 12V A
AT 12V A
GND
P.CON 5V B
AT 12V B
PCB101 VV0153

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED ON PARTS LIST ONLY.

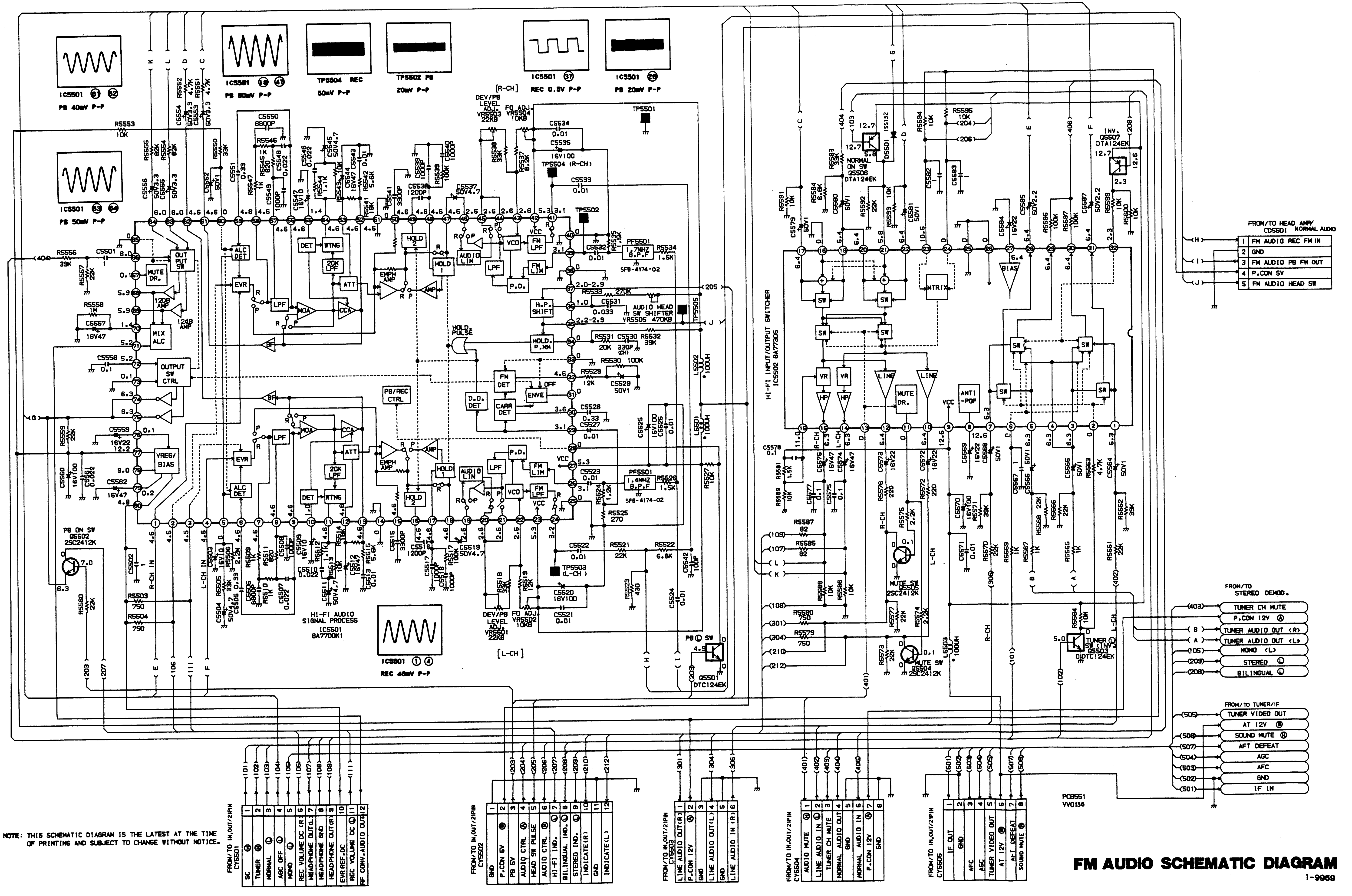
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

**POWER SUPPLY SCHEMATIC DIAGRAM**

1-9965

# FM AUDIO SCHEMATIC DIAGRAM

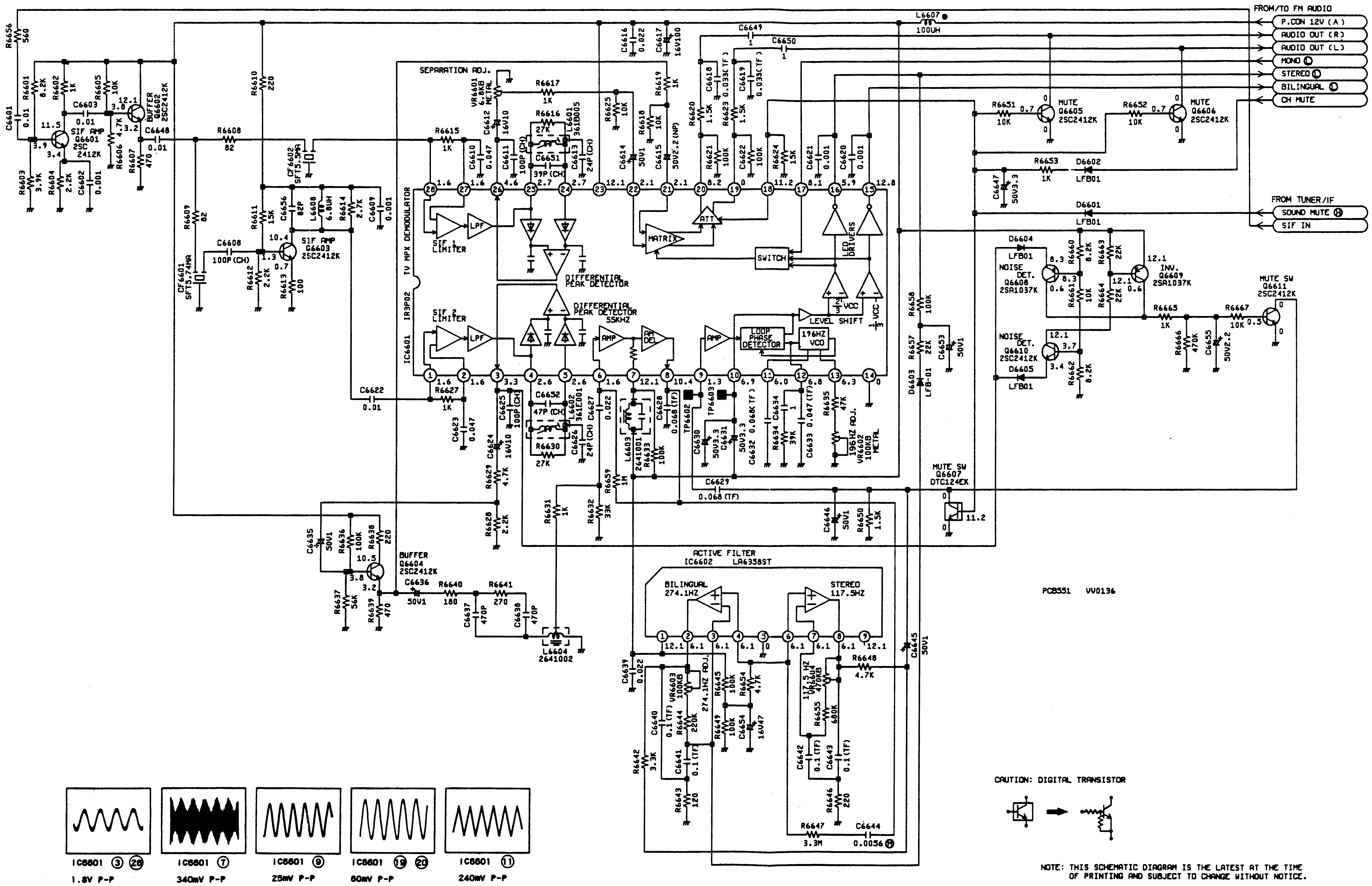

IC5501 (61) (62) PB 40mV P-P
IC5501 (63) (64) PB 50mV P-P
IC5501 (19) (47) PB 60mV P-P
TP5504 REC 50mV P-P
TP5502 PB 20mV P-P
IC5501 (37) REC 0.5V P-P
IC5501 (26) PB 20mV P-P
IC5501 (1) (4) REC 40mV P-P
[R-CH]
[L-CH]
DEV/PB LEVEL ADJ. VR5503 22KB
FO ADJ. VR5504 10KB
DEV/PB LEVEL ADJ. VR5501 22KB
FO ADJ. VR5502 10KB
TP5501
TP5502
TP5503 (L-CH)
TP5504 (R-CH)
TP5505
PF5501 1.7MHZ B.P.F SFB-4174-02
PF5501 1.4MHZ B.P.F SFB-4174-02
AUDIO HEAD SW SHIFTER VR5505 470KB
HI-FI AUDIO SIGNAL PROCESS IC5501 BA7700K1
HI-FI INPUT/OUTPUT SWITCHER IC5502 BA7730S
PB ON SW Q5502 2SC2412K
PB (L) SW Q5501 DTC124EK
NORMAL ON SW Q5506 DTA124EK
INV. Q5507 DTA124EK
MUTE SW Q5505 2SC2412K
MUTE SW Q5504 2SC2412K
TUNER (L) SW (LIN) Q5503 DTC124EK
D5501 1SS132
L5501 100uH
L5502 100uH
L5503 100uH
OUT PUT SW
MUTE DR.
120B AMP
124B AMP
MIX ALC
OUTPUT SW CTRL
VREG/BIAS
ALC DET
EVR
LPF
MOA
CCA
ATT
DET
WTNG
20K LPF
EMPH AMP
AMP
HOLD 1
HOLD 2
AUDIO LIM
VCO
FM LPF
FM LIM
P.D.
H.P. SHIFT
HOLD. P.MM
HOLD. PULSE
FM DET
ENVE
D.O. DET
CARR DET
PB/REC CTRL
BF
VCC
SW
MTRIX
BIAS
VR
HPF
LINE
MUTE DR.
ANTI-POP
R-CH IN
L-CH IN
R-CH
L-CH
FROM/TO HEAD AMP/ CD5601 NORMAL AUDIO
1 FM AUDIO REC FM IN
2 GND
3 FM AUDIO PB FM OUT
4 P.CON 5V
5 FM AUDIO HEAD SW
FROM/TO STEREO DEMOD.
(403) TUNER CH MUTE
P.CON 12V (A)
(B) TUNER AUDIO OUT <R>
(A) TUNER AUDIO OUT <L>
(105) MONO <L>
(209) STEREO (L)
(208) BILINGUAL (L)
FROM/TO TUNER/IF
(505) TUNER VIDEO OUT
AT 12V (B)
(508) SOUND MUTE (H)
(507) AFT DEFEAT
(504) AGC
(503) AFC
(502) GND
(501) IF IN
FROM/TO IN,OUT/21PIN CY5501
1 SC (H)
2 TUNER (H)
3 NORMAL (L)
4 AGC OFF (L)
5 MONO (L)
6 REC VOLUME DC (R)
7 HEADPHONE OUT(L)
8 HEADPHONE GND
9 HEADPHONE OUT(R)
10 EVR REF.DC
11 REC VOLUME DC (L)
12 RF CONV.AUDIO OUT
FROM/TO IN,OUT/21PIN CY5502
1 GND
2 P.CON 5V (B)
3 PB 5V
4 AUDIO CTRL (A)
5 HEAD SW PULSE
6 AUDIO CTRL (B)
7 HI-FI IND. (L)
8 BILINGUAL IND. (L)
9 STEREO IND. (L)
10 INDICATE(R)
11 GND
12 INDICATE(L)
FROM/TO IN,OUT/21PIN CY5503
1 LINE AUDIO OUT(R)
2 P.CON 12V (A)
3 GND
4 LINE AUDIO OUT(L)
5 GND
6 LINE AUDIO IN (R)
FROM/TO IN,OUT/21PIN CY5504
1 AUDIO MUTE (H)
2 LINE AUDIO IN (L)
3 TUNER CH MUTE
4 NORMAL AUDIO OUT
5 GND
6 NORMAL AUDIO IN
7 P.CON 12V (A)
8 GND
FROM/TO IN,OUT/21PIN CY5505
1 IF OUT
2 GND
3 AFC
4 AGC
5 TUNER VIDEO OUT
6 AT 12V (B)
7 AFT DEFEAT
8 SOUND MUTE (H)
PCB551 VV0136

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

## FM AUDIO SCHEMATIC DIAGRAM

1-9969

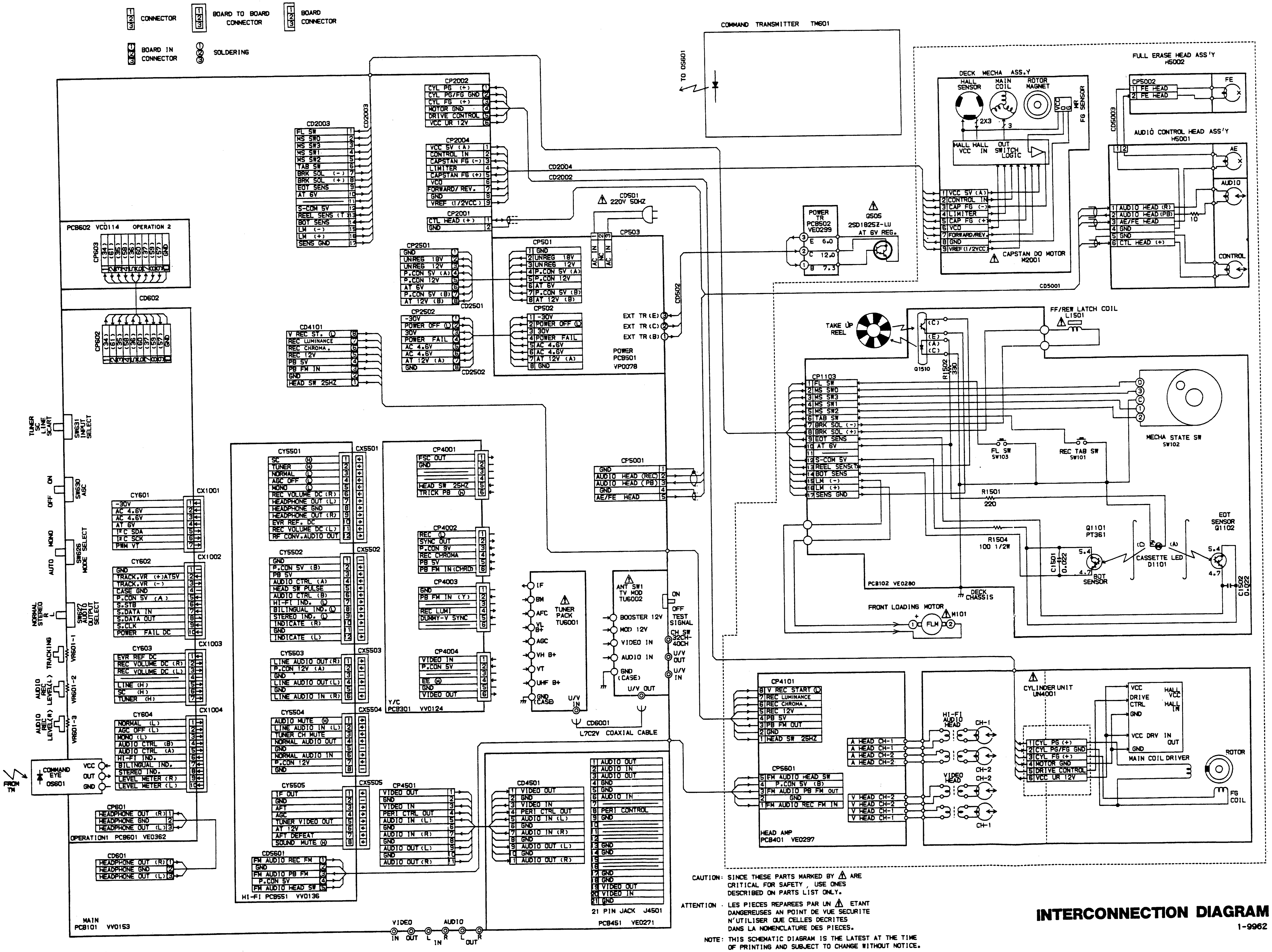
# STEREO DEMODULATOR SCHEMATIC DIAGRAM


FROM/TO FM AUDIO
P.CON 12V (A)
AUDIO OUT (R)
AUDIO OUT (L)
MONO Ⓛ
STEREO Ⓛ
BILINGUAL Ⓛ
CH MUTE
FROM TUNER/IF
SOUND MUTE Ⓗ
SIF IN
SIF AMP Q6601 2SC2412K
BUFFER Q6602 2SC2412K
SIF AMP Q6603 2SC2412K
BUFFER Q6604 2SC2412K
CF6601 SFT5.74MA
CF6602 SFT5.5MA
SEPARATION ADJ.
VR6601 6.8KB METAL
IC6601 IR3P02 TV MPX DEMODULATOR
SIF 1 LIMITER
SIF 2 LIMITER
LPF
DIFFERENTIAL PEAK DETECTOR
DIFFERENTIAL PEAK DETECTOR 55KHZ
AMP
AM DET
MATRIX
ATT
SWITCH
LED DRIVERS
LEVEL SHIFT
LOOP PHASE DETECTOR
196HZ VCO
VCC
196HZ ADJ. VR6602 100KB METAL
L6601 361B005
L6602 361E001
L6603 2641001
L6604 2641002
L6607 100UH
MUTE Q6605 2SC2412K
MUTE Q6606 2SC2412K
NOISE DET. Q6608 2SA1037K
INV. Q6609 2SA1037K
NOISE DET. Q6610 2SC2412K
MUTE SW Q6611 2SC2412K
MUTE SW Q6607 DTC124EK
D6601 LFB01
D6602 LFB01
D6603 LFB-01
D6604 LFB01
D6605 LFB01
ACTIVE FILTER IC6602 LA6358ST
BILINGUAL 274.1HZ
STEREO 117.5HZ
VR6603 100KB 274.1HZ ADJ.
VR6604 470KB 117.5HZ
TP6602
TP6603
PCB551 VV0136
CAUTION: DIGITAL TRANSISTOR
IC6601 ③ ㉘ 1.8V P-P
IC6601 ⑦ 340mV P-P
IC6601 ⑨ 25mV P-P
IC6601 ⑲ ⑳ 60mV P-P
IC6601 ⑪ 240mV P-P

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

STEREO DEMODULATOR SCHEMATIC DIAGRAM

# INTERCONNECTION DIAGRAM



CONNECTOR
BOARD TO BOARD CONNECTOR
BOARD CONNECTOR
BOARD IN CONNECTOR
SOLDERING
COMMAND TRANSMITTER TM601
TO OS601
CP2002
CYL PG (+)
CYL PG/FG GND
CYL FG (+)
MOTOR GND
DRIVE CONTROL
VCC UR 12V
CD2003
FL SW
MS SW0
MS SW3
MS SW1
MS SW2
TAB SW
BRK SOL (-)
BRK SOL (+)
EOT SENS
AT 6V
S-COM 5V
REEL SENS (T)
BOT SENS
LM (-)
LM (+)
SENS GND
CP2004
VCC 5V (A)
CONTROL IN
CAPSTAN FG (-)
LIMITER
CAPSTAN FG (+)
VCO
FORWARD/REV.
GND
VREF (1/2VCC)
CP2001
CTL HEAD (+)
GND
CD2004
CD2002
CD501
220V 50HZ
CP503
PCB602 VC0114 OPERATION 2
CP603
CD602
CP602
CP2501
GND
UNREG 18V
UNREG 12V
P.CON 5V (A)
P.CON 12V
AT 6V
P.CON 5V (B)
AT 12V (B)
CD2501
CP2502
-30V
POWER OFF
30V
POWER FAIL
AC 4.6V
AC 4.6V
AT 12V (A)
GND
CD2502
CP501
CP502
EXT TR (E)
EXT TR (C)
EXT TR (B)
POWER PCB501 VP0078
CD502
POWER TR PCB502 VE0299
Q505 2SD1825Z-LU AT 6V REG.
E 6.0
C 12.0
B 7.3
CD4101
V REC ST.
REC LUMINANCE
REC CHROMA.
REC 12V
PB 5V
PB FM IN
GND
HEAD SW 25HZ
DECK MECHA ASS.Y
HALL SENSOR
MAIN COIL
ROTOR MAGNET
FG SENSOR
MR
2X3
HALL VCC
HALL IN
OUT
SWITCH LOGIC
CAPSTAN DD MOTOR M2001
CD5001
FULL ERASE HEAD ASS'Y H5002
CP5002
FE HEAD
FE HEAD
FE
CD5003
AUDIO CONTROL HEAD ASS'Y H5001
AUDIO HEAD (R)
AUDIO HEAD (PB)
AE/FE HEAD
GND
GND
CTL HEAD (+)
AE
AUDIO
CONTROL
10
FF/REW LATCH COIL L1501
TAKE UP REEL
Q1510
R1502 330
CP1103
MECHA STATE SW SW102
FL SW SW103
REC TAB SW SW101
R1501 220
R1504 100 1/2W
Q1101 PT361
C1501 0.022
BOT SENSOR
CASSETTE LED D1101
EOT SENSOR Q1102
C1502 0.022
PCB102 VE0280
DECK CHASSIS
FRONT LOADING MOTOR M101
FLM
TUNER SC LINE SCART
SW631 INPUT SELECT
OFF ON
SW630 AGC
AUTO MONO
SW626 MODE SELECT
NORMAL STEREO R L
SW627 AUDIO OUTPUT SELECT
TRACKING VR601-1
AUDIO REC LEVEL(L) VR601-2
AUDIO REC LEVEL(R) VR601-3
COMMAND EYE OS601
FROM TM
VCC
OUT
GND
CY601
CX1001
-30V
AC 4.6V
AC 4.6V
AT 6V
I²C SDA
I²C SCK
PWM VT
CY602
CX1002
GND
TRACK.VR (+)AT5V
TRACK.VR (-)
CASE GND
P.CON 5V (A)
S.STB
S.DATA IN
S.DATA OUT
S.CLK
POWER FAIL DC
CY603
CX1003
EVR REF DC
REC VOLUME DC (R)
REC VOLUME DC (L)
LINE (H)
SC (H)
TUNER (H)
CY604
CX1004
NORMAL (L)
AGC OFF (L)
MONO (L)
AUDIO CTRL (B)
AUDIO CTRL (A)
HI-FI IND.
BILINGUAL IND.
STEREO IND.
LEVEL METER (R)
LEVEL METER (L)
CP601
HEADPHONE OUT (R)
HEADPHONE GND
HEADPHONE OUT (L)
OPERATION1 PCB601 VE0362
CD601
HEADPHONE OUT (R)
HEADPHONE GND
HEADPHONE OUT (L)
MAIN PCB101 VV0153
CY5501
CX5501
SC
TUNER
NORMAL
AGC OFF
MONO
REC VOLUME DC (R)
HEADPHONE OUT (L)
HEADPHONE GND
HEADPHONE OUT (R)
EVR REF. DC
REC VOLUME DC (L)
RF CONV.AUDIO OUT
CY5502
CX5502
GND
P.CON 5V (B)
PB 5V
AUDIO CTRL (A)
HEAD SW PULSE
AUDIO CTRL (B)
HI-FI IND.
BILINGUAL IND.
STEREO IND.
INDICATE (R)
GND
INDICATE (L)
CY5503
CX5503
LINE AUDIO OUT (R)
P.CON 12V (A)
GND
LINE AUDIO OUT (L)
GND
LINE AUDIO IN (R)
CY5504
CX5504
AUDIO MUTE
LINE AUDIO IN (L)
TUNER CH MUTE
NORMAL AUDIO OUT
GND
NORMAL AUDIO IN
P.CON 12V
GND
CY5505
CX5505
IF OUT
GND
AFT
AGC
TUNER VIDEO OUT
AT 12V
AFT DEFEAT
SOUND MUTE
CD5601
FM AUDIO REC FM
GND
FM AUDIO PB FM
P.CON 5V
FM AUDIO HEAD SW
HI-FI PCB551 VV0136
CP4001
FSC OUT
GND
HEAD SW 25HZ
TRICK PB
CP4002
REC
SYNC OUT
P.CON 9V
REC CHROMA
PB 5V
PB FM IN (CHRO)
CP4003
GND
PB FM IN (Y)
REC LUMI
DUMMY-V SYNC
CP4004
VIDEO IN
P.CON 5V
EE
GND
VIDEO OUT
Y/C PCB301 VV0124
CP4501
VIDEO OUT
GND
VIDEO IN
PERI CTRL OUT
AUDIO IN (L)
GND
AUDIO IN (R)
GND
AUDIO OUT (L)
GND
AUDIO OUT (R)
CD4501
IF
BM
AFC
VL
B+
AGC
VH B+
VT
UHF B+
GND (CASE)
TUNER PACK TU6001
U/V IN
ANT SW1 TV MOD TU6002
BOOSTER 12V
MOD 12V
VIDEO IN
AUDIO IN
GND (CASE)
U/V OUT
ON OFF TEST SIGNAL
CH SW 32CH-40CH
U/V OUT
U/V IN
CD6001
L7C2V COAXIAL CABLE
AUDIO OUT
AUDIO IN
AUDIO OUT
GND
GND
AUDIO IN
PERI CONTROL
GND
VIDEO OUT
VIDEO IN
GND
21 PIN JACK J4501
PCB451 VE0271
VIDEO IN OUT
AUDIO L IN R L OUT R
CP4101
V REC START
REC LUMINANCE
REC CHROMA.
REC 12V
PB 5V
PB FM OUT
GND
HEAD SW 25HZ
CP5601
FM AUDIO HEAD SW
P.CON 5V (B)
FM AUDIO PB FM OUT
GND
FM AUDIO REC FM IN
HEAD AMP PCB401 VE0297
A HEAD CH-1
A HEAD CH-1
A HEAD CH-2
A HEAD CH-2
V HEAD CH-2
V HEAD CH-2
V HEAD CH-1
V HEAD CH-1
HI-FI AUDIO HEAD
VIDEO HEAD
CH-1
CH-2
CYLINDER UNIT UN4001
CYL PG (+)
CYL PG/FG GND
CYL FG (+)
MOTOR GND
DRIVE CONTROL
VCC UR 12V
VCC
DRIVE CTRL
GND
HALL VCC
HALL IN
VCC DRV IN
OUT
MAIN COIL DRIVER
ROTOR
FG COIL

CAUTION: SINCE THESE PARTS MARKED BY ⚠ ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED ON PARTS LIST ONLY.

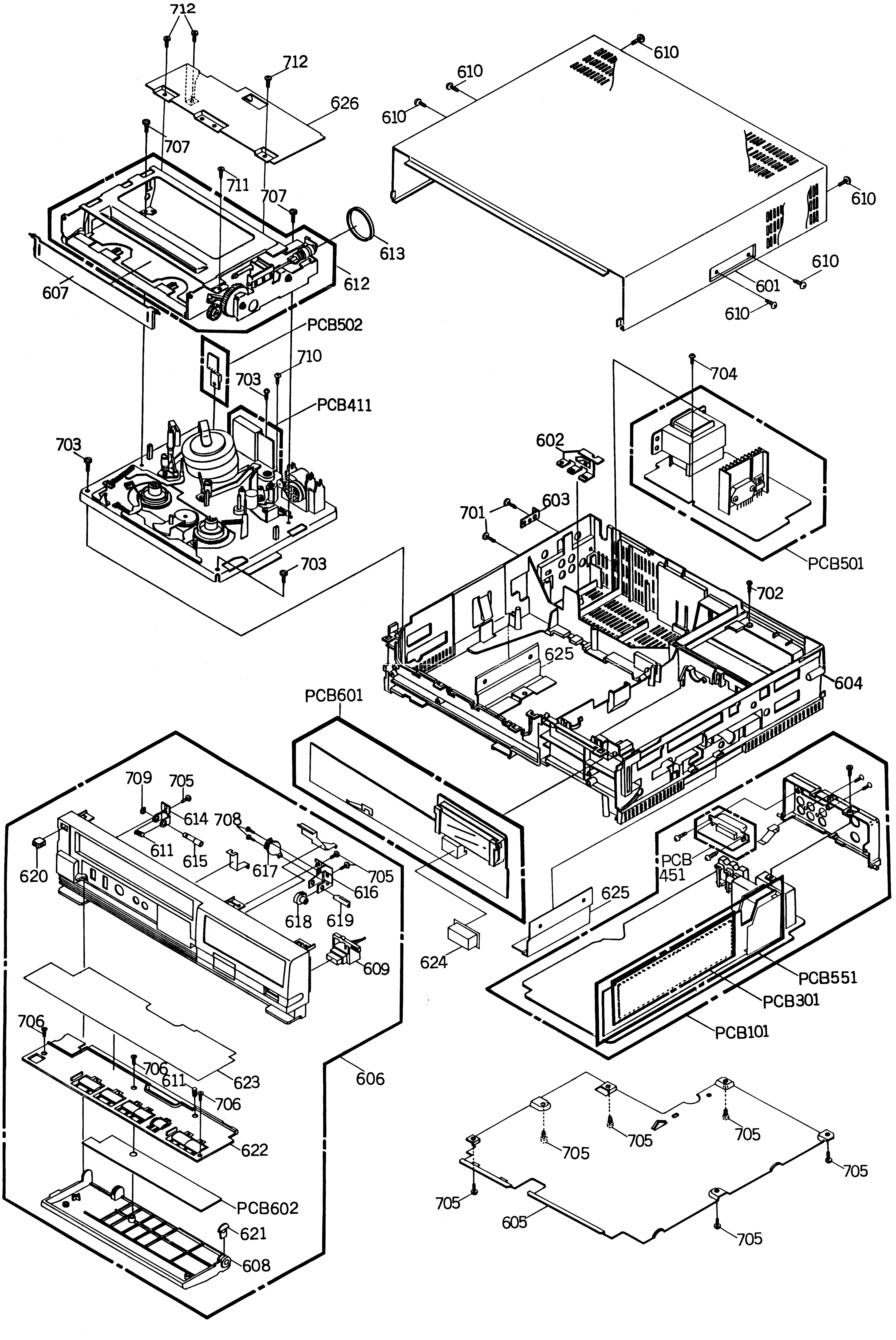
ATTENTION: LES PIECES REPAREES PAR UN ⚠ ETANT DANGEREUSES AU POINT DE VUE SECURITE N'UTILISER QUE CELLES DECRITES DANS LA NOMENCLATURE DES PIECES.

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

## INTERCONNECTION DIAGRAM

1-9962

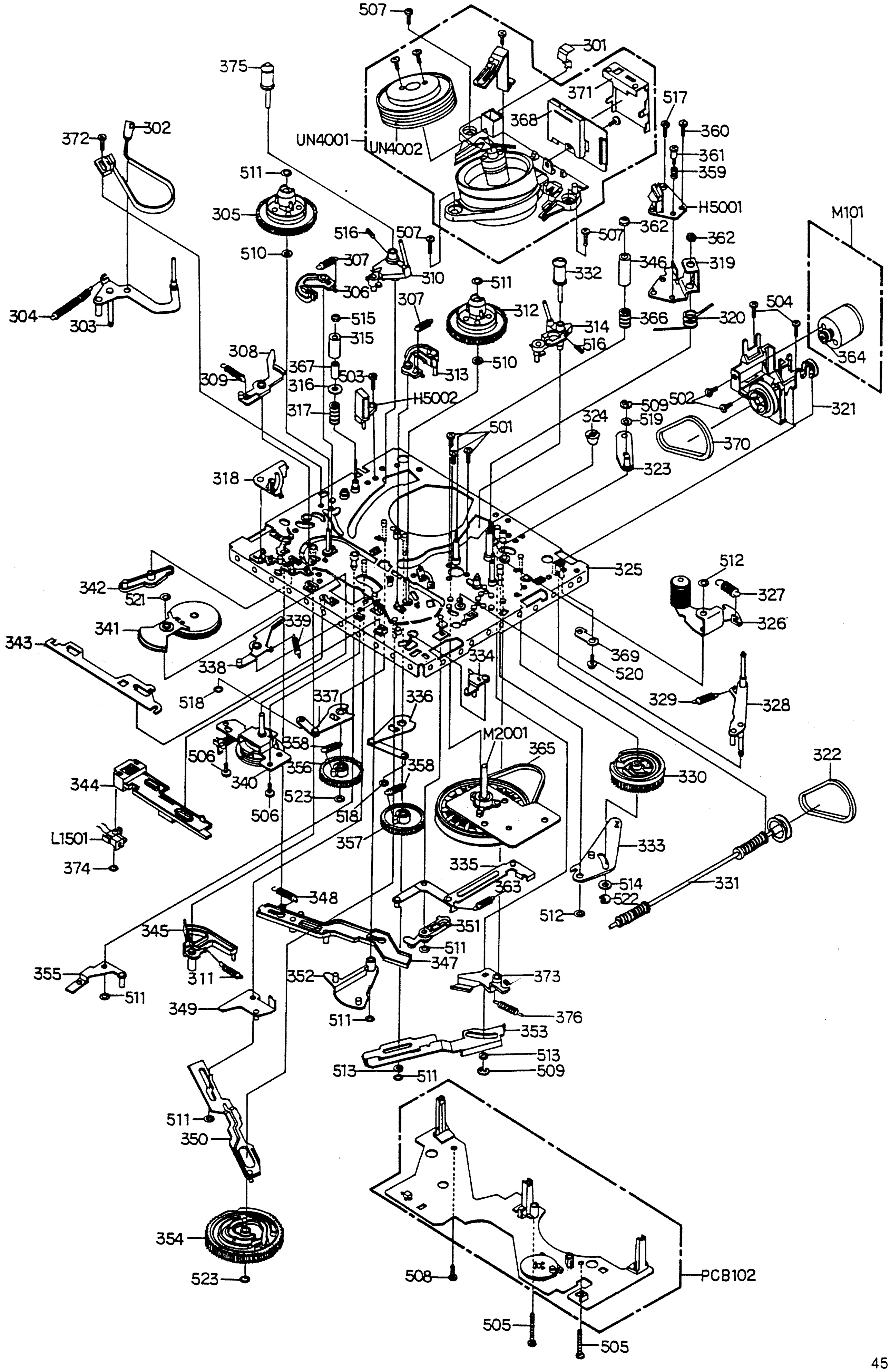
# MECHANICAL EXPLODED VIEW


712
712
626
707
711
707
613
612
607
PCB502
710
703
PCB411
703
703
610
610
610
610
610
601
610
704
602
603
701
PCB501
702
625
604
PCB601
709
705
614
708
611
615
617
705
616
620
618
619
609
624
PCB
451
625
PCB551
PCB301
PCB101
706
706
611
706
623
606
622
PCB602
621
608
705
705
705
705
705
605
705

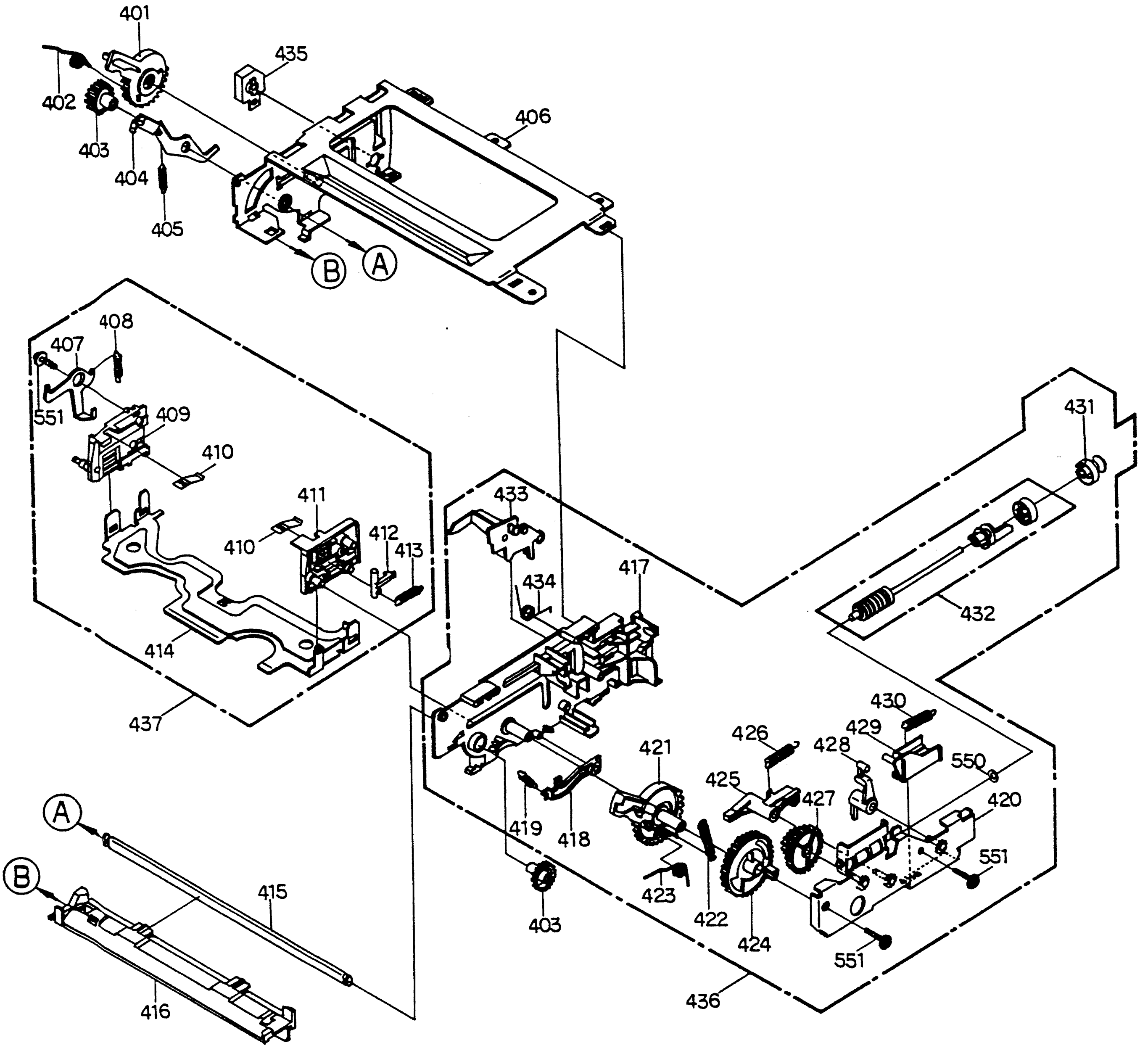
MECHANICAL EXPLODED VIEW

1-9970

# DECK EXPLODED VIEW


507
301
375
371
517
360
368
302
372
UN4001
UN4002
361
359
511
H5001
305
M101
516
507
362
507
362
510
307
310
346
319
306
511
332
304
303
307
312
366
320
504
515
314
315
516
364
308
367
313
510
309
503
316
H5002
317
509
502
321
501
519
324
370
323
318
325
512
342
327
521
326
341
339
343
369
334
338
520
518
337
336
329
328
M2001
365
358
506
356
358
322
330
344
340
523
518
506
333
L1501
357
335
374
363
514
522
331
348
512
345
351
511
347
355
311
352
373
511
349
376
511
353
513
509
513
511
511
350
354
523
508
PCB102
505
505

# DECK EXPLODED VIEW


401
435
402
406
403
404
405
B
A
408
407
551
409
410
411
410
412
413
431
433
417
434
414
432
437
430
426
429
421
428
550
425
427
420
419
418
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416

## MECHANICAL REPLACEMENT PARTS LIST

| REF.NO | PART NO | DESCRIPTION |
|---|---|---|
| 601 | 702USS0014 | CABINET.TOP |
| 602 | 753USA0010 | PLATE.DECK EARTH |
| 603 | 753USA0009 | PLATE.TRANS EARTH |
| 604 | 702UPA0021 | CABINET.INSIDE |
|  | 7222021075 | SHEET.RATING |
|  | 800SFA0002 | CUSHION.LEG |
| 605 | 702USA0015 | PLATE.BOTTOM |
| 606 | A44512A720 | CABINET.FRONT ASS'Y |
|  | 701WPJ0037 | CABINET.FRONT |
|  | 711WPA0003 | PLATE.REMOCON |
|  | 711WPA0004 | PLATE.DISPLAY |
|  | 7230003729 | PLATE.OPERATION |
|  | 753JSA0032 | PLATE.EARTH(F) |
|  | 753JSA0034 | PLATE.EARTH(W) |
| 607 | 7230003731 | FLAP |
| 608 | 712WPJ0017 | DOOR |
|  | 7232020176 | ORION BADGE |
| 609 | 735WPA0055 | BUTTON.POWER |
|  | 713WPA0015 | GLASS.LED |
| 610 | 788JSE0014 | TAPPING(BO) TRUSS 4*12 BK |
| 611 | 742JUA0039 | SPRING |
| 612 | A44802A650 | FRONT LOADING UNIT(FL-6) |
| 613 | 850P600315 | BELT.FRONT LOADING |
| 614 | 787JSA0001 | SHAFT.HOLDER(L) |
| 615 | 787JSE0002 | SHAFT.DOOR(L) |
| 616 | 787JSA0002 | SHAFT.HOLDER(R) |
| 617 | 890Y2G50F0 | DAMPER Y2G50-F |
| 618 | 787WPA0001 | GEAR |
| 619 | 787JSE0003 | SHAFT.DOOR(R) |
| 620 | 890238Y3J0 | MAGNET 238Y3J09-80 |
| 621 | 787JSA0003 | SHAFT.PLATE |
| 622 | 713WPD0003 | FRAME.BUTTON |
| 623 | 7230003730 | PLATE.DOOR |
| 624 | 759JBA0003 | COVER.REMOCON |
| 625 | 752TSA0062 | PLATE.SHIELD SIDE |
| 626 | 752TSA0061 | PLATE.HEAD SHIELD |
| 701 | 8102240804 | BIND M4*8 CH |
| 702 | 8110630A44 | TAP TITE(P) BRAZIER 3*14 CH |
| 703 | 8117140A24 | TAPPING(BO) PAN 4*12 CH |
| 704 | 8117630804 | TAPPING(BO) BRAZIER 3*8 CH |
| 705 | 8110630804 | TAP TITE(P) BRAZIER 3*8 CH |
| 706 | 8109330604 | TAP TITE(B) FLAT 3*6 CH |
| 707 | 8107230804 | TAP TITE(S) BIND 3*8 CH |
| 708 | 8107120504 | TAP TITE(S) PAN 2*5 CH |
| 709 | 83ETW20000 | E-RING 2 |
| 710 | 8107630504 | TAP TITE(S) BRAZIER 3*5 CH |
| 711 | 8107230504 | TAP TITE(S) BIND 3*5 CH |
| 712 | 8117330A02 | TAPPING(BO) FLAT 3*10 BK |
| --- | J4093002B | GUARANTEE CARD |
| --- | J4244039E | VPS CAUTION SHEET |
| --- | J4371728A | WARNING SHEET |
| --- | J4374720B | DEW CAUTION SHEET |
| --- | J4451201A | INSTRUCTION BOOK |
| --- | J4451207A | QUICK SET-UP SHEET |
| --- | 7230003650 | VPS.CAUTION LABEL |
| --- | 791UHA0005 | GIFT.SHEET |
| --- | 792UHA0027 | PACKAGE |
| --- | 793UCD0306 | GIFT.BOX |
| --- | 715TPA0004 | HOLDER CLOCK |

# DECK REPLACEMENT PARTS LIST

| REF.NO | PART NO | DESCRIPTION | |
|---|---|---|---|
| 301 | 850P500023 | SPRING.TR. | |
| 302 | 850A600093 | TENSION.BAND ASS'Y | |
| 303 | 850A400077 | TENSION.ARM ASS'Y | |
| 304 | 850P800141 | SPRING.TENSION ARM | |
| 305 | 850A200028 | REEL DISK S ASS'Y | |
| 306 | 850A600117 | MAIN BRAKE S ASS'Y | |
| 307 | 850P800168 | SPRING.MAIN BRAKE | |
| 308 | 850P600289 | ARM.S-S BRAKE | |
| 309 | 850P800164 | SPRING.SS BRAKE | |
| 310 | 850A400087 | BASE.S INCLINED ASS'Y | |
| 311 | 850P800171 | SPRING.M-B 3 | |
| 312 | 850A200029 | REEL DISK T ASS'Y | |
| 313 | 850A600118 | MAIN BRAKE T ASS'Y | |
| 314 | 850A400080 | BASE.T INCLINED ASS'Y | |
| 315 | 850P500032 | ROLLER.IMPEDANCE | |
| 316 | 850P600274 | FLANGE.P1 | |
| 317 | 850P800075 | SPRING.P1 | |
| 318 | 850P600281 | LEVER.REC.SW. | |
| 319 | 850P500042 | BASE.AC HEAD 2 | |
| 320 | 850P800150 | SPRING.AC HEAD BASE | |
| 321 | 850A600102 | LOADING MOTOR BOX ASS'Y | |
| 322 | 850P600276 | BELT.LOADING MOTOR | |
| 323 | 850A500008 | P-R.LEVER ASS'Y | |
| 324 | 850P600314 | NUT.ADJUST X | |
| 325 | 850A000027 | MAIN CHASSIS ASS'Y | |
| 326 | 850A400073 | PINCH ROLLER ARM ASS'Y | |
| 327 | 850P800149 | SPRING.P-R ARM | |
| 328 | 850A400078 | LIMITER.POST ARM ASS'Y | |
| 329 | 850P800148 | SPRING.L-P ARM | |
| 330 | 850P600323 | CAM 1 | |
| 331 | 850A600100 | WORM ASS'Y | |
| 332 | 850A400076 | G-ROLLER ASS'Y | |
| 333 | 850A300031 | LOADING.LEVER 2 ASS'Y | |
| 334 | 850P600291 | LEVER.SUB BRAKE | |
| 335 | 850A900083 | LEVER.FRONT LOADING ASS'Y | |
| 336 | 850A300030 | LOADING.ARM T ASS'Y | |
| 337 | 850A300029 | LOADING.ARM S ASS'Y | |
| 338 | 850A600122 | T-S BRAKE 2 ASS'Y | |
| 339 | 850P800165 | SPRING.TS BRAKE | |
| 340 | 850A200027 | CLUTCH ASS'Y | |
| 341 | 850A200026 | IDLER ASS'Y | |
| 342 | 850P600300 | MAIN BRAKE LEVER 1 | |
| 343 | 850P600290 | ACTUATOR.SUB BRAKE | |
| 344 | 850A600113 | CLUTCH ACTUATOR ASS'Y | |
| 345 | 850P600303 | LEVER TENSION | |
| 346 | 850P600312 | POST.P4 | |
| 347 | 850P600299 | SLIDE.MAIN BRAKE | |
| 348 | 850P800169 | SPRING.M-B SLIDE | |
| 349 | 850A600109 | M-B 2 LEVER ASS'Y | |
| 350 | 850A600108 | T-A SLIDE ASS'Y | |
| 351 | 850P600301 | LEVER.LIMITER POST | |
| 352 | 850P600302 | LEVER.CLUTCH ACTUATOR | |
| 353 | 850P300112 | SLIDE.LOADING 2 | |
| 354 | 850P600324 | CAM 2 | |
| 355 | 850A600099 | M-B 3 LEVER ASS'Y | |
| 356 | 850P300100 | GEAR.LOADING S | |
| 357 | 850P300101 | GEAR.LOADING T | |
| 358 | 850P800147 | SPRING.LOADING GEAR | |
| 359 | 850P800167 | SPRING.AZIMUTH | |
| 360 | 8144J30604 | CONEHEAD SCREW | M3*6 CH |
| 361 | 8146230A14 | JOINT,SCREW BIND | M3*11 CH |
| 362 | 850P500010 | ADJUST NUT | |
| 363 | 850P800170 | SPRING.FRONT LOADING LEVER | |
| 364 | 850P600313 | PULLEY.LOADING MOTOR | |
| 365 | 850P600277 | BELT.REEL | |
| 366 | 850P800146 | SPRING.P4 | |
| 367 | 850P600273 | SLEEVE.P1 | |
| 368 | 850PAA0106 | SHIELD CASE 4 | |
| 369 | 850P000218 | BRACKET.WORM | |
| 370 | 789JRA0001 | BELT.FRONT LOADING | |
| 371 | 850PAA0105 | SHIELD LID 4 | |
| 372 | 850P000215 | BRACKET.DECK | |
| 373 | 868507H804 | TAP TITE(S) PAN W6 | 3*8 CH |
| 374 | 901B100000 | EARTH LUG | 7.3(B10) |
| 375 | 850P000285 | CS-RING | 2.6*5.4*T0.1 |
| 376 | 850A400090 | G-ROLLER ASS'Y | |
| 401 | 850P900457 | LINK GEAR L | |
| 402 | 850P800175 | SPRING LINK GEAR L | |
| 403 | 850P900358 | GEAR.SYNCHRO | |
| 404 | 850P900360 | LEVER.FLAP | |
| 405 | 850P800157 | SPRING.FLAP | |
| 406 | 850A900096 | TOP BRACKET ASS'Y | |
| 407 | 850P900458 | LOCKER | |
| 408 | 850P800154 | SPRING.LOCKER | |
| 409 | 850P900349 | CASS.SIDE L | |
| 410 | 850P900354 | SPRING.PACK | |
| 411 | 850P900444 | CASS.SIDE R A | |
| 412 | 850P900365 | REMOVING | |
| 413 | 850P800155 | SPRING.REMOVING | |
| 414 | 850P900351 | CASS.HOLDER | |
| 415 | 850P900267 | SHAFT.SYNCHRO | |
| 416 | 850P900455 | TAPE GUIDE PIECE VR | |
| 417 | 850P900445 | BRACKET.SIDE R1A | |
| 418 | 850P900361 | LEVER.FRONT LOADING SW. | |
| 419 | 850P800158 | SPRING.FRONT LOADING SW.LEVER | |
| 420 | 850A900098 | SIDE BRACKET R2 ASSY | |
| 421 | 850P900456 | LINK GEAR R | |
| 422 | 850P800153 | SPRING.CLUTCH GEAR | |
| 423 | 850P800176 | SPRING.LINK GEAR R | |
| 424 | 850P900357 | GEAR.CLUTCH | |
| 425 | 850P900362 | LEVER.LOCK | |
| 426 | 850P800159 | SPRING.LOCK LEVER | |
| 427 | 850P900367 | WHEEL | |
| 428 | 850P900364 | LEVER.CLUTCH | |
| 429 | 850P900363 | LEVER.SLIDE | |
| 430 | 850P800160 | SPRING.SLIDE LEVER | |
| 431 | 850P900366 | JOINT.PULLEY | |
| 432 | 850A900082 | WORM ASS'Y | |
| 433 | 850P900446 | OPENER A | |
| 434 | 850P800172 | SPRING.OPENER A | |
| 435 | 850P900396 | COVER.SENSOR | |
| 436 | A44802A640 | SIDE BRACKET R ASS'Y | |
| 437 | A44802A690 | CASSETTE HOLDER ASS'Y | |
| 501 | 8107126604 | TAP TITE(S) PAN | 2.6*6 CH |
| 502 | 8102130404 | PAN | M3*4 CH |
| 503 | 8107226804 | TAP TITE(S) BIND | 2.6*8 CH |
| 504 | 8107230A44 | TAP TITE(S) BIND | 3*14 CH |
| 505 | 8107230A64 | TAP TITE(S) BIND | 3*16 CH |
| 506 | 8107230604 | TAP TITE(S) BIND | 3*6 CH |
| 507 | 8107230804 | TAP TITE(S) BIND | 3*8 CH |
| 508 | 8110230804 | TAP TITE(P) BIND | 3*8 CH |
| 509 | 83ETW25000 | E-RING | 2.5 |
| 510 | 82Q315483N | PW | 3.1*5.4*T0.13 |
| | 82Q315403N | PW | 3.1*5.4*T0.3 |
| 511 | 82P255504N | PW(CUT) | 2.5*5.5*T0.4 |
| 512 | 82P316005N | PW(CUT) | 3.1*6.0*T0.5 |
| 513 | 82A3270054 | WASHER | 3.1*7.0*T0.5 |
| 514 | 82A4080054 | WASHER | 4.3*8.0*T0.5 |
| 515 | 8300720000 | NYLON NUT | M2 |
| 516 | 815DJ20302 | SET SCREW 6 CUP POINT | M2*3 BK |
| 517 | 8145J30601 | SCREW +UPSET | M3*6 NI |
| 518 | 83CST35050 | CS RING | 3.5 |
| 519 | 82A3070C5N | PW | 3.1*7.0*T0.25 |
| 520 | 8107330804 | TAP TITE(S) FLAT | 3*8 CH |
| 521 | 82P2660C5N | PW(CUT) | 2.6*6.0*T0.25 |
| 522 | 83ETW30060 | E-RING | 3.0 |
| 523 | 82P306005N | PW(CUT) | 3.1*6.0*T0.5 |
| 550 | 82Q315405N | PW | 3.1*5.4*T0.5 |
| 551 | 86817CGA04 | TAPPING(BO) BIND WH6.5 | 2.6*10 CH |
| C1501 | CH4FF03H4Z | CC | 22000 PF 25V |
| C1502 | CH4FF03H4Z | CC | 22000 PF 25V |
| CD5001 | 068126017A | CORD EIS CONNECTOR | 8126017A |
| CD5003 | 068122007A | CORD EIS CONNECTOR | 8122007A |
| CP1103 | 069R7H0069 | CONNECTOR PCB SIDE | 52044-1710 |
| D1101 | 0010100300 | INFRARED LED | LN59L |
| H5001 | 1523D91010 | HEAD AUDIO CONTROL | HVMZA1054A |
| H5002 | 1543D02004 | HEAD FULL ERASE | HVFMF0006A |
| L1501 | 02BL000005 | ELECTRO MAGNET | JTM1002-01-01 |
| M101 | 1596958008 | MOTOR.LOADING | MXN-13FB12F |
| M2001 | 1510398011 | CAPSTAN.DD UNIT | F2QKB85 |
| PCB102 | A44801A550 | PCB ASS'Y | VE0280 |
| Q1101 | 0000G00040 | PHOTO TRANSISTOR | PT493FT |
| Q1102 | 0000G00040 | PHOTO TRANSISTOR | PT493FT |
| Q1510 | 0002300140 | PHOTO COUPLER | SPI-315-04 |
| R1501 | R001T6221J | RC | 220 OHM 1/6W |
| R1502 | R001T6331J | RC | 330 OHM 1/6W |
| R1504 | R002T2101J | RC | 100 OHM 1/2W |
| SW101 | 0500211001 | PUSH SWITCH | SPPB61023A |
| SW102 | 0520244002 | SWITCH.ROTARY | SRZZ00081A |
| SW103 | 0501211001 | PUSH SWITCH | SPPB51096A |
| UN4001 | A44503A500 | UNIT.CYLINDER | A44503A500 |
| UN4002 | A44501A620 | UPPER DRUM ASS'Y | A44501A620 |

THIS ELECTRICAL PARTS LIST IS STANDARD PART LIST, BUT
INTERCHANGEABLE PARTS MAY BE USED IN THE UNIT.
SEE THE INTERCHANGEABLE PARTS LIST AFTER THE STANDARD PARTS LIST.

## ELECTRICAL REPLACEMENT PARTS LIST

### RESISTORS

| REF.NO | PART NO | DESCRIPTION | |
|---|---|---|---|
| R611 | R00104106J | RC | 10M OHM 1/4W |
| R638 | R00104820J | RC | 82 OHM 1/4W |
| R639 | R00104820J | RC | 82 OHM 1/4W |

### CAPACITORS

| REF.NO | PART NO | DESCRIPTION | |
|---|---|---|---|
| C501 | E011F3332M | CE | 3300 UF 25V |
| C502 | E011F3222M | CE | 2200 UF 25V |
| C516 | E011F2222M | CE | 2200 UF 16V |
| C519 | P2160B104M | CPP | 0.1 UF 250V |
| C611 | E59A0P473Z | CE | 0.047 UF 5.5V |
| C6640 | P61300104J | CMPL | 0.1 UF 50V |
| C6643 | P61300104J | CMPL | 0.1 UF 50V |

### SEMICONDUCTORS

| REF.NO | PART NO | DESCRIPTION | |
|---|---|---|---|
| ⚠ D501 | D23TDSF10T | DIODE,RECTIFIER | DSF10TB-BT-A |
| ⚠ D502 | D23TDSF10T | DIODE,RECTIFIER | DSF10TB-BT-A |
| ⚠ D503 | D23TDSF10T | DIODE,RECTIFIER | DSF10TB-BT-A |
| ⚠ D504 | D23TDSF10T | DIODE,RECTIFIER | DSF10TB-BT-A |
| ⚠ D505 | D23TDSF10T | DIODE,RECTIFIER | DSF10TB-BT-A |
| ⚠ D506 | D23TDSF10T | DIODE,RECTIFIER | DSF10TB-BT-A |
| ⚠ D507 | D23TDSF10T | DIODE,RECTIFIER | DSF10TB-BT-A |
| ⚠ D508 | D23TDSF10T | DIODE,RECTIFIER | DSF10TB-BT-A |
| D509 | D28T011E20 | DIODE,SILICON | 11E2TA1 |
| D510 | D28T011E20 | DIODE,SILICON | 11E2TA1 |
| ⚠ D511 | DB7T2MR150 | GLASS SEALED LED | LTZ-MR15-T77 |
| D512 | D93013001B | DIODE,ZENER | GZB30B |
| D513 | D93T01300Y | DIODE,ZENER | GZA13Y BT |
| D514 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D515 | D28T011E10 | DIODE,SILICON | 11E1TA1 |
| ⚠ D516 | D1VT024720 | DIODE,SILICON | 1S2472T-77 |
| ⚠ D517 | D1VT024720 | DIODE,SILICON | 1S2472T-77 |
| ⚠ D518 | D23TDSF10T | DIODE,RECTIFIER | DSF10TB-BT-A |
| ⚠ D519 | D23TDSF10T | DIODE,RECTIFIER | DSF10TB-BT-A |
| ⚠ D520 | D23TDSF10T | DIODE,RECTIFIER | DSF10TB-BT-A |
| ⚠ D521 | D23TDSF10T | DIODE,RECTIFIER | DSF10TB-BT-A |
| D522 | D1VT024720 | DIODE,SILICON | 1S2472T-77 |
| D601 | 002112Q050 | LED | LN81RCPH-(TA2) |
| D602 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D603 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D606 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D607 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D612 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D613 | D94UA6R2J2 | DIODE,ZENER | HZS6R2JB2-T |
| D614 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D615 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D617 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D618 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D619 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D620 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D632 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D633 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D634 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D1003 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D1005 | D94TA130J1 | DIODE,ZENER | HZS13JB1-TE |
| D1009 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D1010 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D1013 | D94TA100J2 | DIODE,ZENER | HZS10JB2-TE |
| D2003 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D2004 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D2007 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D2008 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D2012 | D28T011ES1 | DIODE,SILICON | 11ES1TA1 |
| D2013 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D3001 | D1VT024720 | DIODE,SILICON | 1S2472T-77 |
| D3004 | D1VT024720 | DIODE,SILICON | 1S2472T-77 |
| D4001 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D4002 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D4005 | D94TA9R1J2 | DIODE,ZENER | HZS9R1JB2-TE |
| D4008 | D94TA6R8J2 | DIODE,ZENER | HZS6R8JB2-TE |
| D4201 | D94TA130J2 | DIODE,ZENER | HZS13JB2-TE |
| D4202 | D94TA130J2 | DIODE,ZENER | HZS13JB2-TE |
| D4203 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D4204 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D4205 | D1VT024720 | DIODE,SILICON | 1S2472T-77 |
| D4207 | D94TA130J2 | DIODE,ZENER | HZS13JB2-TE |
| D5101 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D5102 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D5103 | D94TA130J2 | DIODE,ZENER | HZS13JB2-TE |
| D5104 | D94TA130J2 | DIODE,ZENER | HZS13JB2-TE |
| D5105 | D94TA130J2 | DIODE,ZENER | HZS13JB2-TE |
| D5106 | D94TA130J2 | DIODE,ZENER | HZS13JB2-TE |
| D5501 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D6101 | D1VT001320 | DIODE,SILICON | 1SS132T-77 |
| D6601 | DD3RLFB01L | DIODE,SILICON | LFB-01L |
| D6602 | DD3RLFB01L | DIODE,SILICON | LFB-01L |

### SEMICONDUCTORS (CONT)

| REF.NO | PART NO | DESCRIPTION | |
|---|---|---|---|
| D6603 | DD3RLFB01L | DIODE,SILICON | LFB-01L |
| D6604 | DD3RLFB01L | DIODE,SILICON | LFB-01L |
| D6605 | DD3RLFB01L | DIODE,SILICON | LFB-01L |
| ⚠ IC501 | 123S953420 | IC | STK5342 |
| IC601 | 156DT7005C | IC | OEC7005C |
| IC602 | 101901280M | IC | MN1280M |
| IC603 | 156D086300 | IC | M58630P |
| IC604 | 107DQ68100 | IC | BA6810S |
| IC701 | 13ED656420 | IC | SDA5642 |
| IC1001 | 154D50017A | IC | O[illegible]C0017 |
| IC1002 | 106S51954A | IC | M51954AL |
| IC1003 | 107S062470 | IC | BA6247 |
| IC1005 | 103S063930 | IC | LA6393S |
| IC2001 | 197D49011A | IC | OEC9011 |
| IC3001 | 103D373300 | IC | LA7330 |
| IC3701 | 107TC7025L | IC | BA7025L |
| IC4001 | 103D37323A | IC | LA7323A |
| IC4002 | 108D369653 | IC | MSM6965-3RS |
| IC4101 | 103DG73200 | IC | LA7320 |
| IC4201 | 10QS022340 | IC | NJM2234S |
| ⚠ IC5001 | 107D767AS0 | IC | BA7767AS |
| IC5101 | 103S072220 | IC | LA7222 |
| IC5501 | 107F777000 | IC | BA7700K1 |
| IC5502 | 107D777300 | IC | BA7730S |
| IC5601 | 107D777400 | IC | BA7740S |
| IC6001 | 106DA365SP | IC | M51365SP |
| IC6101 | 103S06358T | IC | LA6358ST |
| IC6102 | 103S079100 | IC | LA7910 |
| ⚠ IC6103 | 102I90574J | IC | UPC574J-T |
| IC6501 | 103S072100 | IC | LA7210 |
| IC6601 | 10GDF3P020 | IC | IR3P02 |
| IC6602 | 103S06358T | IC | LA6358ST |
| ⚠ Q501 | TA3T0984K0 | TRANSISTOR,SILICON | 2SA984K-AA |
| ⚠ Q502 | TD70019330 | TRANSISTOR,SILICON | 2SD1933 |
| ⚠ Q503 | TD30016660 | TRANSISTOR,SILICON | 2SD1666(R.S) |
| ⚠ Q505 | TD3H018250 | TRANSISTOR,SILICON | 2SD1825Z-LU |
| Q506 | TNQTB03001 | COMPOUND TRANSISTOR | DTC114ESTP |
| Q605 | TPQTD03001 | COMPOUND TRANSISTOR | DTA144ESTP |
| Q606 | TPQTD03001 | COMPOUND TRANSISTOR | DTA144ESTP |
| Q607 | TPQTD03001 | COMPOUND TRANSISTOR | DTA144ESTP |
| Q608 | TPQTD03001 | COMPOUND TRANSISTOR | DTA144ESTP |
| Q609 | TNQTC03001 | COMPOUND TRANSISTOR | DTC124ESTP |
| Q610 | TC3T0536K0 | TRANSISTOR,SILICON | 2SC536K-NP-AA |
| Q611 | TA3T0608K0 | TRANSISTOR,SILICON | 2SA608K-NP-AA |
| Q612 | TA3T0608K0 | TRANSISTOR,SILICON | 2SA608K-NP-AA |
| Q613 | TPQTD03001 | COMPOUND TRANSISTOR | DTA144ESTP |
| Q614 | TNQTC03001 | COMPOUND TRANSISTOR | DTC124ESTP |
| ⚠ Q1001 | TD3T011110 | TRANSISTOR,SILICON | 2SD1111-AA |
| Q1005 | TNQTC03001 | COMPOUND TRANSISTOR | DTC124ESTP |
| Q1006 | TNQTC03001 | COMPOUND TRANSISTOR | DTC124ESTP |
| ⚠ Q1007 | TC3T022740 | TRANSISTOR,SILICON | 2SC2274-AA |
| Q1010 | TNQTC03001 | COMPOUND TRANSISTOR | DTC124ESTP |
| ⚠ Q1011 | TB3T006980 | TRANSISTOR,SILICON | 2SB698-AA |
| Q1013 | TNQTC03001 | COMPOUND TRANSISTOR | DTC124ESTP |
| Q1014 | TNQTC03001 | COMPOUND TRANSISTOR | DTC124ESTP |
| Q1015 | TNQTC03001 | COMPOUND TRANSISTOR | DTC124ESTP |
| Q1016 | TNQTC03001 | COMPOUND TRANSISTOR | DTC124ESTP |
| Q1017 | TNQTC03001 | COMPOUND TRANSISTOR | DTC124ESTP |
| Q2001 | TD3T011110 | TRANSISTOR,SILICON | 2SD1111-AA |
| Q2002 | TB3T009260 | TRANSISTOR,SILICON | 2SB926-AA |
| Q2003 | TPQTD03001 | COMPOUND TRANSISTOR | DTA144ESTP |
| Q2004 | TNQTC03001 | COMPOUND TRANSISTOR | DTC124ESTP |
| Q2005 | TNQTC03001 | COMPOUND TRANSISTOR | DTC124ESTP |
| Q2006 | TCQT1740S0 | TRANSISTOR,SILICON | 2SC1740SPTP |
| Q2007 | TCQT1740S0 | TRANSISTOR,SILICON | 2SC1740SPTP |
| Q2008 | TCQT1740S0 | TRANSISTOR,SILICON | 2SC1740SPTP |
| Q3001 | T67A1037K0 | TRANSISTOR,SILICON | 2SA1037KT147 |
| Q3002 | T87A02412K | TRANSISTOR,SILICON | 2SC2412KT147 |
| Q3004 | T87A02412K | TRANSISTOR,SILICON | 2SC2412KT147 |
| Q3006 | T87A02412K | TRANSISTOR,SILICON | 2SC2412KT147 |
| Q3007 | T87A02412K | TRANSISTOR,SILICON | 2SC2412KT147 |
| Q3008 | T87A02412K | TRANSISTOR,SILICON | 2SC2412KT147 |
| Q3701 | TN7TC05001 | COMPOUND TRANSISTOR | DTC124EKT147 |
| Q3702 | T87A02412K | TRANSISTOR,SILICON | 2SC2412KT147 |
| Q4001 | T67A1037K0 | TRANSISTOR,SILICON | 2SA1037KT147 |
| Q4002 | T83A028127 | TRANSISTOR,SILICON | 2SC2812-L7-TA |
| Q4003 | T83A028127 | TRANSISTOR,SILICON | 2SC2812-L7-TA |
| Q4005 | T83A028127 | TRANSISTOR,SILICON | 2SC2812-L7-TA |
| Q4006 | T83A028127 | TRANSISTOR,SILICON | 2SC2812-L7-TA |
| Q4007 | T87A02412K | TRANSISTOR,SILICON | 2SC2412KT147 |
| Q4008 | T67A1037K0 | TRANSISTOR,SILICON | 2SA1037KT147 |
| Q4009 | T87A02412K | TRANSISTOR,SILICON | 2SC2412KT147 |
| Q4010 | TN7TC05001 | COMPOUND TRANSISTOR | DTC124EKT147 |
| Q4201 | TNQTC03001 | COMPOUND TRANSISTOR | DTC124ESTP |

# ELECTRICAL REPLACEMENT PARTS LIST

## SEMICONDUCTORS (CONT)

| REF.NO | PART NO | DESCRIPTION |
|---|---|---|
| Q4202 | TB3T006980 | TRANSISTOR,SILICON 2SB698-AA |
| Q4203 | TA3T0608K0 | TRANSISTOR,SILICON 2SA608K-NP-AA |
| Q4204 | TA3T0608K0 | TRANSISTOR,SILICON 2SA608K-NP-AA |
| Q4205 | TCQT1740S0 | TRANSISTOR,SILICON 2SC1740SPTP |
| Q4206 | TNQTC03001 | COMPOUND TRANSISTOR DTC124ESTP |
| Q4207 | TNQTC03001 | COMPOUND TRANSISTOR DTC124ESTP |
| Q4208 | TNQTB03001 | COMPOUND TRANSISTOR DTC114ESTP |
| Q5005 | TC1T013170 | TRANSISTOR,SILICON 2SC1317-T |
| Q5101 | TCQT1740S0 | TRANSISTOR,SILICON 2SC1740SPTP |
| Q5102 | TCQT1740S0 | TRANSISTOR,SILICON 2SC1740SPTP |
| Q5501 | TN7TC05001 | COMPOUND TRANSISTOR DTC124EKT147 |
| Q5502 | T87A02412K | TRANSISTOR,SILICON 2SC2412KT147 |
| Q5503 | TN7TC05001 | COMPOUND TRANSISTOR DTC124EKT147 |
| Q5504 | T87A02412K | TRANSISTOR,SILICON 2SC2412KT147 |
| Q5505 | T87A02412K | TRANSISTOR,SILICON 2SC2412KT147 |
| Q5506 | TP7TC05001 | COMPOUND TRANSISTOR DTA124EKT147 |
| Q5507 | TP7TC05001 | COMPOUND TRANSISTOR DTA124EKT147 |
| Q5601 | TN7TD05001 | COMPOUND TRANSISTOR DTC144EKT147 |
| Q6001 | T83A028140 | TRANSISTOR,SILICON 2SC2814-TA |
| Q6002 | T67A1037K0 | TRANSISTOR,SILICON 2SA1037KT147 |
| Q6003 | TC3T022740 | TRANSISTOR,SILICON 2SC2274-AA |
| Q6004 | TN7TC05001 | COMPOUND TRANSISTOR DTC124EKT147 |
| Q6101 | TC3T0536K0 | TRANSISTOR,SILICON 2SC536K-NP-AA |
| Q6501 | TCQT1740S0 | TRANSISTOR,SILICON 2SC1740SPTP |
| Q6601 | T87A02412K | TRANSISTOR,SILICON 2SC2412KT147 |
| Q6602 | T87A02412K | TRANSISTOR,SILICON 2SC2412KT147 |
| Q6603 | T87A02412K | TRANSISTOR,SILICON 2SC2412KT147 |
| Q6604 | T87A02412K | TRANSISTOR,SILICON 2SC2412KT147 |
| Q6605 | T87A02412K | TRANSISTOR,SILICON 2SC2412KT147 |
| Q6606 | T87A02412K | TRANSISTOR,SILICON 2SC2412KT147 |
| Q6607 | TN7TC05001 | COMPOUND TRANSISTOR DTC124EKT147 |
| Q6608 | T67A1037K0 | TRANSISTOR,SILICON 2SA1037KT147 |
| Q6609 | T67A1037K0 | TRANSISTOR,SILICON 2SA1037KT147 |
| Q6610 | T87A02412K | TRANSISTOR,SILICON 2SC2412KT147 |
| Q6611 | T87A02412K | TRANSISTOR,SILICON 2SC2412KT147 |

## COILS & TRANSFORMERS

| REF.NO | PART NO | DESCRIPTION |
|---|---|---|
| L701 | 021B73101K | COIL 100 UH |
| L1001 | 021B73101K | COIL 100 UH |
| L1002 | 021LA6101K | COIL 100 UH |
| L3002 | 021LA6180K | COIL 18 UH |
| L3003 | 021LA63R3K | COIL 3.3 UH |
| L3004 | 021LA6101K | COIL 100 UH |
| L3005 | 021B73101K | COIL 100 UH |
| L3006 | 021LA6150K | COIL 15 UH |
| L3701 | 021B73101K | COIL 100 UH |
| L3702 | 032622001N | COIL,TRAP 2622001 |
| L4001 | 021LA6221K | COIL 220 UH |
| L4003 | 021LA6470K | COIL 47 UH |
| L4004 | 021LA61R0M | COIL 1.0 UH |
| L4005 | 021B73101K | COIL 100 UH |
| L4006 | 021B73101K | COIL 100 UH |
| L4007 | 021LA6330K | COIL 33 UH |
| L4009 | 021LA6151K | COIL 150 UH |
| L4010 | 021LA6220K | COIL 22 UH |
| L4011 | 021LA6100K | COIL 10 UH |
| L4012 | 021LA6180K | COIL 18 UH |
| L4013 | 021LA6150K | COIL 15 UH |
| L4014 | 021LA6121K | COIL 120 UH |
| L4015 | 021LA6330K | COIL 33 UH |
| L4016 | 021B73101K | COIL 100 UH |
| L4101 | 021B73101K | COIL 100 UH |
| L4102 | 021B73101K | COIL 100 UH |
| L4201 | 021B73101K | COIL 100 UH |
| L4202 | 021B73101K | COIL 100 UH |
| L4203 | 021LA6100K | COIL 10 UH |
| L5001 | 021B73101K | COIL 100 UH |
| L5003 | 021J74682J | COIL 6.8 MH |
| L5101 | 021B73101K | COIL 100 UH |
| L5501 | 021B73101K | COIL 100 UH |
| L5502 | 021B73101K | COIL 100 UH |
| L5503 | 021B73101K | COIL 100 UH |
| L5601 | 021B73101K | COIL 100 UH |
| L5602 | 021B73101K | COIL 100 UH |
| L6001 | 03360M002I | COIL,VIDEO IFT 360M002 |
| L6002 | 033601003I | COIL,VIDEO IFT 3601003 |
| L6005 | 033600023I | COIL,VIDEO IFT 3600023 |
| L6006 | 033600024I | COIL,VIDEO IFT 3600024 |
| L6007 | 033600025I | COIL,VIDEO IFT 3600025 |
| L6008 | 021LA6820K | COIL 82 UH |
| L6009 | 021LA6680K | COIL 68 UH |
| L6010 | 021LA6101K | COIL 100 UH |
| L6011 | 021LA6150K | COIL 15 UH |
| L6012 | 021LA6101K | COIL 100 UH |
| L6013 | 021LA6680K | COIL 68 UH |

## COILS & TRANSFORMERS (CONT)

| REF.NO | PART NO | DESCRIPTION |
|---|---|---|
| L6014 | 021LA6R68M | COIL 0.68 UH |
| L6015 | 021LA61R8M | COIL 1.8 UH |
| L6101 | 021B73101K | COIL 100 UH |
| L6102 | 021B73101K | COIL 100 UH |
| L6501 | 021B73101K | COIL 100 UH |
| L6601 | 03361B005I | COIL.SOUND IFT 361B005 |
| L6602 | 03361E001I | COIL.SOUND IFT 361E001 |
| L6603 | 032641001I | COIL.TRAP 2641001 |
| L6604 | 032641002I | COIL.TRAP 2641002 |
| L6607 | 021B73101K | COIL 100 UH |
| L6608 | 021LA66R8K | COIL 6.8 UH |
| ⚠ T501 | 040557020C | TRANSFORMER,POWER AC 0557020 |
| T5001 | 033626001G | COIL.BIAS OSC 3626001 |

## JACKS

| REF.NO | PART NO | DESCRIPTION |
|---|---|---|
| J601 | 0602101012 | JACK,RCA 3.5 HSJ1406-01-020 |
| J4501 | 0632100006 | SOCKET,21 PIN HXC1510-01-300 |
| J5101 | 060M111008 | JACK,RCA 3.5 T5813 |

## SWITCHES

| REF.NO | PART NO | DESCRIPTION |
|---|---|---|
| SW608 | 0504201T22 | SWITCH,TACT SKHVBD005 |
| SW617 | 0504101T27 | SWITCH,TACT EVQ-QHS03W |
| SW618 | 0504101T27 | SWITCH,TACT EVQ-QHS03W |
| SW619 | 0504101T27 | SWITCH,TACT EVQ-QHS03W |
| SW620 | 0504101T27 | SWITCH,TACT EVQ-QHS03W |
| SW621 | 0504101T27 | SWITCH,TACT EVQ-QHS03W |
| SW622 | 0504101T27 | SWITCH,TACT EVQ-QHS03W |
| SW623 | 0504101T27 | SWITCH,TACT EVQ-QHS03W |
| SW624 | 0504101T27 | SWITCH,TACT EVQ-QHS03W |
| SW625 | 0504101T27 | SWITCH,TACT EVQ-QHS03W |
| SW626 | 0510321010 | SWITCH,SLIDE HSW0932-01-940 |
| SW627 | 0510141006 | SWITCH,SLIDE ESD-146141 |
| SW628 | 0504201T22 | SWITCH,TACT SKHVBD005 |
| SW630 | 0510321010 | SWITCH,SLIDE HSW0932-01-940 |
| SW631 | 0510141006 | SWITCH,SLIDE ESD-146141 |

## VARIABLE RESISTORS

| REF.NO | PART NO | DESCRIPTION |
|---|---|---|
| VR601 | V019300016 | VR.ROTARY EVU-H31BA0038 |
| VR604 | V1263U3BT6 | VR,SEMIFIXED RH0638CW3R02A |
| VR605 | V1263U3BT6 | VR,SEMIFIXED RH0638CW3R02A |
| VR2001 | V1263Q5BT6 | VR,SEMIFIXED RH0638CS5R02A |
| VR2002 | V126315BT6 | VR,SEMIFIXED RH0638C15R02A |
| VR3701 | V126313BT6 | VR,SEMIFIXED RH0638C13R02A |
| VR4001 | V1263H4BT6 | VR,SEMIFIXED RH0638CJ4R02A |
| VR4002 | V126314BT5 | VR,SEMIFIXED RH0636C14R07B |
| VR4003 | V1263L3BT6 | VR,SEMIFIXED RH0638CN3R02A |
| VR4004 | V126314BT5 | VR,SEMIFIXED RH0636C14R07B |
| VR4005 | V126314BT5 | VR,SEMIFIXED RH0636C14R07B |
| VR4101 | V126214BT1 | VR,SEMIFIXED RH0632C14R01 |
| VR4102 | V126214BT1 | VR,SEMIFIXED RH0632C14R01 |
| VR5001 | V126314BT5 | VR,SEMIFIXED RH0636C14R07B |
| VR5002 | V1263E5B03 | VR,SEMIFIXED RH0624CE5J |
| VR5501 | V1263H4BT4 | VR,SEMIFIXED RH064FCJ4R07A |
| VR5502 | V126314BT4 | VR,SEMIFIXED RH064FC14R07A |
| VR5503 | V1263H4BT4 | VR,SEMIFIXED RH064FCJ4R07A |
| VR5504 | V126314BT4 | VR,SEMIFIXED RH064FC14R07A |
| VR5505 | V1263Q5BT4 | VR,SEMIFIXED RH064FCS5R07A |
| VR6002 | V126314BT5 | VR,SEMIFIXED RH0636C14R07B |
| VR6003 | V126314BT5 | VR,SEMIFIXED RH0636C14R07B |
| VR6601 | V1263U3BT4 | VR,SEMIFIXED RH064FCW3R07A |
| VR6602 | V126315BT4 | VR,SEMIFIXED RH064FC15R07A |
| VR6602 | V126315BT4 | VR,SEMIFIXED RH064FC15R07A |
| VR6603 | V126315BT6 | VR,SEMIFIXED RH0638C15R02A |
| VR6604 | V1263Q5BT6 | VR,SEMIFIXED RH0638CS5R02A |

## P.C. BOARDS ASS'Y

| REF.NO | PART NO | DESCRIPTION |
|---|---|---|
| PCB101 | A44512A01A | PCB ASS'Y VV0153 |
| PCB301 | A44512A30A | PCB ASS'Y VV0124 |
| PCB411 | A44503A33A | PCB ASS'Y VE0297 |
| PCB451 | A44512A26A | PCB ASS'Y VE0271 |
| PCB501 | A45512A02A | PCB ASS'Y VP0078 |
| PCB502 | A44512A02A | PCB ASS'Y VE0299 |
| PCB551 | A45512A23A | PCB ASS'Y VV0136 |
| PCB601 | A44512A27A | PCB ASS'Y VE0362 |
| PCB602 | A45512A28A | PCB ASS'Y VC0114 |

## MISCELLANEOUS

| REF.NO | PART NO | DESCRIPTION |
|---|---|---|
| BT601 | 141T003004 | BATTERY,MANGAN UM-3 1.5V |
| BZ601 | 0717000003 | BUZZER,PIEZOELECTRIC KBS-13DB-4P-2 |
| ⚠ CD501 | 120H450036 | CORD,AC E2N 7FEET |
| CD502 | 1227031203 | CORD.JUMPER 27031203 |
| CD601 | 068123014A | CORD,EIS CONNECTOR 8123014A |
| CD602 | 12260A0603 | CORD.JUMPER 260A0603 |
| CD603 | 068101235A | CORD,EIS CONNECTOR 8101235A |

# ELECTRICAL REPLACEMENT PARTS LIST

| REF.NO | PART NO | DESCRIPTION |
|---|---|---|
| MISCELLANEOUS (CONT) | | |
| CF601 | 116F3TH4Z1 | FILTER.EMI LTSTF223ZBTB |
| CF602 | 116F3TH4Z1 | FILTER.EMI LTSTF223ZBTB |
| CP501 | 069R980019 | CONNECTOR PCB SIDE 52004-0810 |
| CP502 | 069R980019 | CONNECTOR PCB SIDE 52004-0810 |
| CP503 | 0694430100 | CORD.UX CONNECTOR 2-173270-3 |
| CP601 | 0694230139 | CONNECTOR PCB SIDE 173979-3 |
| CP602 | 069RVA0219 | CONNECTOR PCB SIDE 52030-1010 |
| CP603 | 069RVA0011 | CONNECTOR PCB SIDE 52207-1090 |
| CY601 | 0694270060 | CONNECTOR PCB SIDE 173991-7 |
| CY602 | 06942A0060 | CONNECTOR PCB SIDE 1-173991-0 |
| CY603 | 0694270060 | CONNECTOR PCB SIDE 173991-7 |
| CY604 | 06942A0060 | CONNECTOR PCB SIDE 1-173991-0 |
| CD2002 | 068126019A | CORD.EIS CONNECTOR 8126019A |
| CD2003 | 122B0H1001 | CORD.JUMPER 2B0H1001 |
| CD2004 | 068129017A | CORD.EIS CONNECTOR 8129017A |
| CD2501 | 122B081001 | CORD.JUMPER 2B081001 |
| CD2502 | 122B081001 | CORD.JUMPER 2B081001 |
| CD4101 | 068128012A | CORD.EIS CONNECTOR 8128012A |
| CD4501 | 122B0B8001 | CORD.JUMPER 2B0B8001 |
| CD5601 | 068125013A | CORD.EIS CONNECTOR 8125013A |
| CD6001 | 06C1H06002 | CORD.COAXIAL C1H06002 |
| CD6002 | 0680L05004 | CABLE.PAL PDS05-DP05-3C1.5 |
| CF3701 | 10114R1703 | FILTER.CERAMIC EFCS4R17MS4A |
| CF6001 | 1027038R95 | FILTER.SAW F1037B |
| CF6002 | 1022133R42 | FILTER.SAW SAF33.4MC70Z |
| CF6005 | 1012T5R503 | FILTER.CERAMIC TRAP TPS5.5MB-TF20 |
| CF6601 | 101205R743 | FILTER.CERAMIC SFT5.74MA |
| CF6602 | 101205R504 | FILTER.CERAMIC SFT5.5MA |
| CP2001 | 069H220329 | CONNECTOR PCB SIDE IL-S-2P-S2T2-EF |
| CP2003 | 069R7H0059 | CONNECTOR PCB SIDE 52045-1710 |
| CP2501 | 069R980029 | CONNECTOR PCB SIDE 51016-0800 |
| CP2502 | 069R980029 | CONNECTOR PCB SIDE 51016-0800 |
| CP4001 | 069Q160179 | CONNECTOR PCB SIDE CPB1806-0101 |
| CP4002 | 0697160189 | CONNECTOR PCB SIDE TXX-H06P-G1 |
| CP4003 | 0697160189 | CONNECTOR PCB SIDE TXX-H06P-G1 |
| CP4004 | 069Q160179 | CONNECTOR PCB SIDE CPB1806-0101 |
| CP4101 | 0694280139 | CONNECTOR PCB SIDE 173979-8 |
| CP4501 | 069R9B0019 | CONNECTOR PCB SIDE 52004-1110 |
| CP4502 | 069R980029 | CONNECTOR PCB SIDE 51016-1100 |
| CP5001 | 069H250329 | CONNECTOR PCB SIDE IL-S-5P-S2T2-EF |
| CP5601 | 0694250139 | CONNECTOR PCB SIDE 173979-5 |
| CX1001 | 0694270070 | CONNECTOR PCB SIDE 173992-7 |
| CX1002 | 06942A0070 | CONNECTOR PCB SIDE 1-173992-0 |
| CX1003 | 0694270070 | CONNECTOR PCB SIDE 173992-7 |
| CX1004 | 06942A0070 | CONNECTOR PCB SIDE 1-173992-0 |
| CX5501 | 069R2C0049 | CONNECTOR PCB SIDE 5532-12A |
| CX5502 | 069R2C0049 | CONNECTOR PCB SIDE 5532-12A |
| CX5503 | 069R260019 | CONNECTOR PCB SIDE 5512-06A |
| CX5504 | 069R280019 | CONNECTOR PCB SIDE 5512-08A |
| CX5505 | 069R280049 | CONNECTOR PCB SIDE 5532-08A |
| CY5501 | 069R2C0029 | CONNECTOR PCB SIDE 5533-12APB |
| CY5502 | 069R2C0029 | CONNECTOR PCB SIDE 5533-12APB |
| CY5503 | 069R260089 | CONNECTOR PCB-PCB 5513-06APB |
| CY5504 | 069R280089 | CONNECTOR PCB-PCB 5513-08APB |
| CY5505 | 069R280029 | CONNECTOR PCB SIDE 5533-08APB |
| DL3001 | 104124R439 | DELAY LINE GLASS EFD-JF124A13N |
| ⚠ F501 | 080ET1R601 | FUSE BET 1.6A(T)250V |
| ⚠ F502 | 080ET02001 | FUSE BET 2 A(T)250V |
| ⚠ F503 | 080ET02001 | FUSE BET 2 A(T)250V |
| ⚠ F504 | 080ETR6301 | FUSE BET630MA(T)250V |
| FH501 | 067M0T0004 | HOLDER.FUSE H0451 |
| FH502 | 067M0T0005 | HOLDER.FUSE H0452 |
| ⚠ ICP051 | 084EF0R301 | IC PROTECTOR PRF-315-F003 |
| ICP421 | 0847TR2501 | IC PROTECTOR ICP-N5T104 |
| NR601 | 1102422305 | R.NETWORK RGLD4X223J |
| NR602 | 11024104T1 | R.NETWORK RGLD4X104J-T21 |
| NR603 | 1102F10402 | R.NETWORK RGLE15X104J |
| NR604 | 1102310401 | R.NETWORK RGLD3X104J |
| NR1001 | 11024472T1 | R.NETWORK RGLD4X472J-T21 |
| NR1002 | 11023223T1 | R.NETWORK RGLD3X223J-T21 |
| NR1003 | 11023223T1 | R.NETWORK RGLD3X223J-T21 |
| OS601 | 077M011001 | REMOTE RECEIVER KEY-C00SV-3 |
| PF3001 | 1141B44606 | FILTER.BAND PASS 41B44606 |
| PF3002 | 1141L15605 | FILTER.LOW PASS 41L15605 |
| PF3003 | 1141B50604 | FILTER.BAND PASS 41B50604 |
| PF4001 | 1141L30606 | FILTER.LOW PASS 41L30606 |
| PF4002 | 1141H14605 | FILTER.HIGH PASS 41H14605 |
| PF4003 | 1141L33604 | FILTER.LOW PASS 41L33604 |
| PF4201 | 103L02R102 | DELAY 3L02R102 |
| PF5001 | 116F3TH4Z1 | FILTER.EMI LTSTF223ZBTB |
| PF5002 | 116F3TH4Z1 | FILTER.EMI LTSTF223ZBTB |
| PF5501 | 1144B14602 | FILTER.BAND PASS SFB-4174-02 |

| REF.NO | PART NO | DESCRIPTION |
|---|---|---|
| MISCELLANEOUS (CONT) | | |
| TC601 | 0100614T08 | C.CERAMIC TRIMMER VCT51F522A |
| TM601 | 076100D050 | TRANSMITTER EUR-531005 |
| ⚠ TU6001 | 0145M01018 | TUNER,UHF-VHF TEREI-078A |
| ⚠ TU6002 | 0151M01017 | RF-CONVERTER MDLK6D553A |
| V601 | 096H70R306 | TUBE FLUORESCENT DISPLAY FV360G |
| X601 | 100EA4R108 | CRYSTAL CSA-309 |
| X602 | 100D32R801 | CRYSTAL DT-26S 32.768KHZ |
| X1001 | 1003T4R001 | CERAMIC OSCILLATOR KBR-4.0MSTF |
| X3001 | 1006A4R302 | CRYSTAL HC-49/U 4.43361875MHZ |
| X6501 | 1003R50001 | CERAMIC OSCILLATOR KBR-500AH2 |

RESISTOR
RC........CARBON RESISTOR

CAPACITORS
CC........CERAMIC CAPACITOR
CE........ALUMI ELECTROLYTIC CAPACITOR
CP........POLYESTER CAPACITOR
CPP.......POLYPROPYLENE CAPACITOR
CPL.......PLASTIC CAPACITOR
CMP.......METAL POLYESTER CAPACITOR
CMPL......METAL PLASTIC CAPACITOR
CMPP......METAL POLYPROPYLENE CAPACITOR
CST.......STYROL CAPACITOR

## INTERCHANGEABLE PARTS LIST

NOTE:THE FOLLOWING PART(S) MAY BE SUBSTITUTED FOR PARTS INDICATED IN THE BASIC PART(S) LIST (WITH THE SAME REF.NO.). THESE PARTS SHARE THE SAME ELECTRICAL CHARACTERISTICS AND OTHER ELEMENTS FOR COMMON USAGE.
EITHER PART NUMBER MAY BE USED IN THIS UNIT.

| REF.NO | DESCRIPTION (PART NO) | DESCRIPTION (PART NO) |
|---|---|---|
| NR1001 | RGLD4X472J-T21<br>(11024472T1) | RN5E5A472J01<br>(110E4472T2)<br>EXB-F5E472JYS<br>(11014472T2) |
| NR1002 | RGLD3X223J-T21<br>(11023223T1) | RN5E4A223J01<br>(110E3223T2)<br>EXB-F4E223JYS<br>(11013223T2) |
| NR1003 | RGLD3X223J-T21<br>(11023223T1) | RN5E4A223J01<br>(110E3223T2)<br>EXB-F4E223JYS<br>(11013223T2) |
| NR601 | RGLD4X223J<br>(1102422305) | RN3E5A223J01<br>(110E422312)<br>RN5E5A223J01<br>(110E4223T4)<br>EXB-F5E223JYS<br>(11014223T4) |
| NR602 | RGLD4X104J-T21<br>(11024104T1) | RN5E5A104J01<br>(110E4104T2)<br>EXB-F5E104JYS<br>(11014104T2) |
| NR603 | RGLE15X104J<br>(1102F10402) | RN3HGA104J01<br>(110EF10402) |
| NR604 | RGLD3X104J<br>(1102310401) | RN3E4A104J01<br>(110E310412) |
| SW627 | ESD-146141<br>(0510141006) | HSW0942-01-050<br>(0510341002) |
| SW631 | ESD-146141<br>(0510141006) | HSW0942-01-050<br>(0510341002) |
| T5001 | 3626001<br>(033626001G) | 3626001<br>(033626001N) |
| VR4002 | RH0636C14R07B<br>(V126314BT5) | EVNDXAA03B14<br>(V116314BT6) |
| VR4004 | RH0636C14R07B<br>(V126314BT5) | EVNDXAA03B14<br>(V116314BT6) |
| VR4005 | RH0636C14R07B<br>(V126314BT5) | EVNDXAA03B14<br>(V116314BT6) |
| VR5001 | RH0636C14R07B<br>(V126314BT5) | EVNDXAA03B14<br>(V116314BT6) |
| VR6002 | RH0636C14R07B<br>(V126314BT5) | EVNDXAA03B14<br>(V116314BT6) |